The best-selling RISC OS magazine in the world

ACORN USER

Site Writer

Creating the web pages that you really want



Plus

- What's on at Wakefield
- RISC OS all at sea
- The Web Wizard
- New games

Linux User

- Corel Linux reviewed
- All the latest Linux news

tau PRESS
ISSUE 221 JUNE 2000 £4.20
9 770263 745116 06

CASTLE

Computers for Education
Business and Home

FOR ALL YOUR Acorn HARDWARE & PERIPHERALS

ACORN A7000+ COMPUTERS

	Ex VAT	Inc VAT
A7000+ Classic CD	£499	£586.32
A7000+ Classic HD	£449	£527.57
A7000+ Odyssey CD	£549	£645.07
A7000+ Odyssey Network	£525	£616.87
A7000+ Odyssey Primary	£599	£703.82
A7000+ Odyssey Secondary	£599	£703.82
A7000+ Odyssey Surf	£699	£821.32

ACORN NC COMPUTERS

Sprinter 16MB	£299	£351.32
Sprinter 16MB - Topcat ready	£299	£351.32
Sprinter system 16MB inc 14" Monitor	£379	£445.32

ACORN RISC PC COMPUTERS

Risc PC233T 2GB 8MB EWriter	£749	£880.07
Risc PC233T 4GB 16MB EWriter	£799	£938.82
Risc PC233T CD	£879	£1032.82
Risc PC233T DVD	£929	£1091.57
Risc PC233T Web Wizard	£1149	£1350.07

CD ROM DRIVES

CD ROM fixing kit (data & audio cable)	£4	£4.70
IDE 24x speed CD ROM drive	£30	£35.25
IDE 44x speed CD ROM drive	£35	£41.12
IDE CD driver for Risc PC & A7000	£25	£29.37
SCSI 32x speed CD ROM drive	£69	£81.07
SCSI 4x speed CD ROM drive	£29	£34.07
SCSI 8x speed CD ROM drive	£30	£35.25

CD TOWERS

40x CD 7 drive Tower	£549	£645.07
8x CD 7 drive Tower	£379	£445.32

CD WRITER SPECIAL OFFER!



- 6x record
- 4x re-write
- 16x read

Distribute your resources, back-up your data and give yourself unlimited storage!

GREAT VALUE from £257.32 inc VAT

CD WRITERS

6x4x16 SCSI CD int ReWriter inc !CDBurn	£219	£257.32
6x4x16 SCSI Ext CD ReWriter inc !CDBurn	£249	£292.57

COMBOS (HD & CD)

8x CD & 100MB HD - external SCSI	£99	£116.32
8x CD & 500MB HD - external SCSI	£129	£151.57

EXTENDED WARRANTY

A7000/A7000+ extended warranty – 1 year	£59	£69.32
A7000/A7000+ extended warranty – 2 year	£109	£128.07
A7000/A7000+ extended warranty – 4 year	£189	£222.07
Risc PC (600/700) extended warranty – 1 year	£89	£104.57
Risc PC (600/700) extended warranty – 2 year	£159	£186.82
Risc PC (600/700) extended warranty – 4 year	£279	£327.82
StrongARM Risc PC extended warranty – 1 year	£99	£116.32
StrongARM Risc PC extended warranty – 2 year	£179	£210.32
StrongARM Risc PC extended warranty – 4 year	£319	£374.82

EXTERNAL SCSI CASES

Acorn M E U 2x CD + free 5.25in slot	£49	£57.57
Case for single SCSI device	£40	£47.00
Combo case for 2 SCSI devices	£60	£70.50

FIXING KITS & CABLES etc

2nd slice for Risc PC inc 4 way b'plane	£76	£89.30
A4 IDE hard drive fixing kit	£12	£14.10
A7000/+ backplane (not if CD already installed)	£34	£39.95
Fixing kits for hard drives	£8	£9.40
Monitor cable for all Acorn (selection)	£10	£11.75
Podule case for A3000	£16	£18.80
Risc PC 2 slot backplane	£29	£34.07
SCSI I & II cables choice from	£10	£11.75
SCSI terminator/adaptors (selection)	£10	£11.75
SCSI/IDE ribbon cables from	£5	£5.87

FLOPPY DISC DRIVES

Floppy drive A3010 or A3020	£29	£34.07
Floppy drive A4/5000 A7000 RiscPC	£29	£34.07
Floppy drive for A3000	£29	£34.07
Replacement floppy drive for A4	£20	£23.50

HARD DRIVES

IDE 210MB 3.5in for A4000 & A5000	£40	£47.00
IDE 500MB 3.5in for A4000 & A5000	£45	£52.87
IDE 1.2GB 3.5in for RiscPC & A7000/+	£49	£57.57
IDE 2GB 3.5in for RiscPC & A7000/+	£59	£69.32
IDE 4GB 3.5in for RiscPC & A7000/+	£70	£82.25
SCSI 100MB 3.5in	£39	£45.82
SCSI 2GB 3.5in	£90	£105.75
SCSI 4GB 3.5in	£129	£151.57
SCSI 500MB 3.5in	£49	£57.57
SCSI 9GB 3.5in	£199	£233.82

HARD DRIVES inc Interface

170MB IDE A300/A400 interface included	£100	£117.50
170MB IDE A3000 Interface Included	£85	£99.87
170MB IDE A3010 Interface Included	£85	£99.87
170MB IDE A3020 fitting kit included	£49	£57.57
500MB IDE A300/A400 interface included	£130	£152.75
500MB IDE A3000 interface included	£115	£135.12
500MB IDE A3010 Interface Included	£115	£135.12
500MB IDE A3020 fitting kit included	£79	£92.82

HARD DRIVES Video

9GB Video SCSI external	£599	£703.82
18GB Video SCSI external	£899	£1056.32

HARD DRIVES Xtra

4GB Xtra SCSI internal	£169	£198.57
8GB Xtra SCSI internal	£299	£351.32

IDE INTERFACES

A3/400 IDE interface for 2.5in & 3.5in hard drives	£60	£70.50
A3000 IDE interface kit - 2.5in hard drive	£52	£61.10
A3010 IDE Interface Kit - 2.5in Hard Drive	£52	£61.10
A3020 fixing kit - 2.5in hard drive	£8	£9.40

KEYBOARDS

AURA Acorn keyboard for A7000 and Risc PC	£29	£34.07
Ergo keyboard	£39	£45.82
Ergo keyboard for pre Risc PC	£69	£81.07
Keyboard cable (6 way)	£10	£11.75

MEMORY

A300 & A400 1-4MB	£35	£41.12
A3000 1-4MB	£55	£64.62
A3000 4-8MB	£124	£145.70
A3000 serial port upgrade	£23	£27.02
A3010 1-2MB	£25	£29.37
A3010 1-4MB	£55	£64.62
A3020 & A4000 2-4MB	£35	£41.12
A400 4-8MB -	£99	£116.32
A5000 2-4MB	£45	£52.87
A5000 4-8MB	£119	£139.82

MEMORY RISC PC A7000

4MB SIMM for Risc PC and A7000	£7	£8.22
8MB SIMM for RISC PC and A7000	£10	£11.75
16MB SIMM - Risc PC A7000/+	£39	£45.82
32MB SIMM - Risc PC A7000/+	£59	£69.32
64MB SIMM - Risc PC A7000/+	£85	£99.87
128MB SIMM - Risc PC A7000/+	£14	£175.07
Risc PC 2MB VRAM	£60	£70.50

MICE

Mouse balls heavy (pack of 10)	£15	£17.62
Mouse for A7000/+ N/C	£10	£11.75
Mouse for all Acorns (not A7000 etc)	£12	£14.10
Original mouse for all Acorns (not A7K)	£16	£18.80

SPECIAL OFFER! ISDN MODEM + FREE INTERNET CONNECTION*



- 2x 64kbps channels
- 159x130x40mm footprint
- 2 analogue ports

PLUS FREE Argonet ISP trial

£99 inc VAT and delivery

*ISDN line needed

MODEM

128k ISDN + 2 analogue phone ports	£99	£116.32
128k ISDN hub router with 10BaseT	£249	£292.57
128k ISDN modem	£99	£116.32
128k ISDN modem router (managed)	£385	£452.37
56k modem	£59	£69.32

MONITORS

14" DeltaScan 1402	£259	£304.32
14in Iiyama colour LCD display	£575	£675.62
14in SVGA	£79	£92.82
15in digital SVGA	£99	£116.32
15in digital SVGA Iiyama	£125	£146.87
17in digital SVGA	£149	£175.07
17in Iiyama Pro 410	£269	£316.07
21in Iiyama Pro 510	£649	£762.57

NETWORK CARDS

Ethernet Card A300/A400/A5k (RJ45)	£94	£110.45
Ethernet Card A300/A400/A5k (RJ45/BNC)	£99	£116.32
Ethernet Card A3020/A4k (BNC MAU)	£94	£110.45
Ethernet Card A3020/A4k (RJ45 MAU)	£94	£110.45
Ethernet Card A30x0/A4k (RJ45)	£94	£110.45
Ethernet Card A30x0/A4k (RJ45/BNC)	£99	£116.32
Ethernet Card Risc PC/A7k (RJ45)	£94	£110.45
Ethernet Card Risc PC/A7k (RJ45/BNC)	£99	£116.32

PRINTERS INKJET

Acorn printer driver for any listed printer	£10	£11.75
CANON BJC-2000	£86	£101.05
CANON BJC-4400	£129	£151.57
CANON BJC-4650 (A3)	£225	£264.37
CANON BJC-6000	£189	£222.07
CANON BJC-7100	£219	£257.32
EPSON Stylus colour 460	£85	£99.87
EPSON Stylus colour 660	£99	£116.32
EPSON Stylus colour 860	£194	£227.95
Parallel printer cable	£10	£11.75
TCP/IP (LPR) postsc. printer driver	£175	£205.62

NEW! 233MHz StrongARM (REV T) UPGRADE WITH RISC OS 4



- 10x performance increase with StrongARM upgrade
- 49% performance increase with RISC OS 4 (call for details)

£299 inc VAT

PROCESSORS

ARM 3 processor for A3000 A300 A400	£115	£135.12
ARM 610 processor (2nd user)	£69	£81.07
StrongARM processor & RISC OS 4	£254.47	£299.00
StrongARM processor (revT) & RISC OS 3.7	£229	£269.07

REMOVABLE DRIVES

100MB ZIP drive external SCSI	£99	£116.32
100MB ZIP drive parallel not A300 etc	£109	£128.07
250MB ZIP drive external SCSI	£129	£151.57
640MB MO dive internal	£239	£280.82
640MB MO external drive	£279	£327.82
Iomega Parallel ZIP driver (100MB)	£25	£29.37
JAZ 2GB external SCSI drive	£279	£327.82
JAZ 2GB internal SCSI drive	£259	£304.32
PD 24x CD & 630MB optical SCSI drive	£249	£292.57

REMOVABLE MEDIA

640MB Media for MO drive	£19	£22.32
CD 630MB re-write media	£5	£5.87
CD 630MB write once media (Pk of 10)	£10	£11.75
JAZ 1GB media	£58	£68.15
JAZ 2GB media	£69	£81.07
PD 630MB media	£18	£21.15
SyJet 1.5GB media	£58	£68.15
Syquest 105MB media	£45	£52.87
Syquest 135MB media	£45	£52.87
Syquest 230MB media	£45	£52.87
Syquest 270MB media	£45	£52.87
Zip 100MB media	£8	£9.40
Zip 100MB media (5 pack)	£35	£41.12
Zip 250MB media	£12.50	£14.68

RISC OS UPGRADES

Risc OS 3.11 chip set	£20	£23.50
Risc OS 3.11 hardware upgrade - A300	£20	£23.50
Risc OS 3.11 manual set	£20	£20.00
Risc OS 3.70 (Risc PC Only)	£25	£29.37
Risc OS 4 (RiscPC/A7000)	£99	£116.32

SCANNERS

CanoScan 2700F film scanner	£499	£586.32
ImageMaster & Twain	£49	£57.57
Parallel ScanExpress 6000	£99	£116.32
ScanExpress transparency kit-slides etc	£75	£88.12
Scanflat transparency kit - slides etc	£149	£175.07
SCSI ScanExpress 12000	£149	£175.07
SCSI ScanExpress 6000	£119	£139.82
SCSI ScanExpress A3 SP	£199	£233.82
SCSI Scanflat 1200 pro	£399	£468.82

SCSI INTERFACES

Storm 8 SCSI2 interface - A30x0 A4000	£88	£103.40
Storm16 SCSI2 i/f - A300/A400 A5/7000	£96	£112.80
Storm16/10BaseT SCSI2 & Ethernet i/f	£148	£173.90
Storm16/Combo SCSI2 & Ethernet i/f	£196	£230.30
StormDMA32 SCSI2 i/f RPC	£128	£150.40

SOFTWARE

!RisCafe Java software (CD)	£34.03	£39.98
Acorn C/C++	£160	£188.00
Ant Internet Suite	£95	£111.62
TOPCAT NT server software	£500	£587.50

SPECIALS

A-link for pocket book (AHA30)	£10	£11.75
A4 LCD Screen	£30	£35.25
A4 PSU Pack	£10	£11.75
A5000 Power Supply Unit	£10	£11.75
A7000 Computer	£299	£351.32
Acorn Econet i/f - all except RPC	£5	£5.87
Aiwa 2x CD player	£49	£57.57
Alcatel voice auto attendant telephone PC card	£500	£587.50
DFS Upgrade	£5	£5.87
German keyboards RiscPC/A7000 etc	£10	£11.75
JP150 sheet feeder	£10	£11.75
Master 128 motherboard	£10	£11.75
MaxIT internal 500MB SCSI drive	£99	£116.32
Mustek 12000P Scanner (PC Only)	£55	£64.62
Netproducts Netstation	£120	£141.00
PC card for A3000 A3010 A3020 A4000	£49	£57.57
RF Modulator N/C etc (phono in - TV out)	£15	£17.62
Risc PC sound card (ACD05)	£10	£11.75
SJ Econet Bridge	£20	£23.50
SJ Econet starter kit	£20	£23.50

DELIVERY CHARGES – next day insured

Orders over £200 paid by debit card	FREE	FREE
Small items	£6	£7.05
All other orders	£11	£12.93
Fitting charge (inc collection)	£18	£21.15

We welcome payment by cheque (allow 5 days to clear), Credit and Debit cards.

EDUCATIONAL ORDERS WELCOMED.

CASTLE TECHNOLOGY Ltd, Ore Trading Estate
Woodbridge Road, Framlingham, Suffolk IP13 9LL

TEL: 01728 723200 FAX: 0800 783 9638

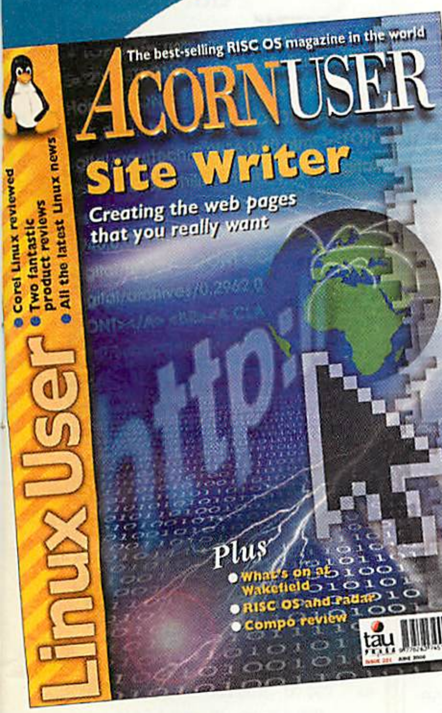
Sales lines open Monday to Friday 9.00am till 5.00pm
Saturday 10.00am till 1.00pm

Contact us by e-mail: sales@castle.org.uk
Visit our web site! www.castle.org.uk

CASTLE

FreeFax 0800 783 9638 web www.castle.org.uk Phone 01728 723200

contents



June 2000

ACORN USER

Reviews

Specials

Features

Regulars

Linux User





It cames as no real surprise that the presence of a PC advert in *Acorn User* has met with criticism from some quarters – I'm not talking about the dealers who are justifiably concerned that their margins could be hurt (but don't forget that with RISC OS dealers you are also paying RISC OS experience, know-how and support). But there are those who have been offended by the mere presence of such an advert, as if there is some unpleasant taint.

I find this odd.

I've always worked on the assumption that all RISC OS users are interested in furthering the RISC OS cause. I'm sure that we all really would like to see this market expanding – aren't we all working for that ideal world where RISC OS is judged on at least an equal footing as Windows, MacOS and Linux?

In an editorial many years ago I talked of a situation where Acorn themselves became successful and behaved the way that people object to Microsoft behaving – it's not realistic to assume it would be otherwise.

And if that ideal world came to be, what size of magazine would *Acorn User* be? And how many other RISC OS magazines would there be on the newsstands?

And how bloated with box-shifter adverts would those magazines be?

So perhaps we at *Acorn User* are just giving you a taste of the future. I don't think it's too bad a price to pay for success, do you?

Steve Turnbull
Editor

July issue on sale 8th June 2000

Published by

tau PRESS

26 Stockport Village, Hooper Street,
Stockport SK1 1DQ
e-mail: enquiries@acornuser.com
http://www.acornuser.com/
Tel: (0161) 429 8902 Fax: (0161) 429 0685
Printed by The Manson Group Ltd, St Albans

Editor Steve Turnbull
Production Consultant Alan Jones

Contributors
Alasdair Bailey, Mike Cook, David Dade, Andrew Green, Teri Paul, John Pettigrew, Jill Regan, Steve Scott, Mike Tomkinson, Pam Turnbull, Paul Vigay

Account Manager Geraldine Wolstenholme
Finance Manager Gary Duxbury
Subscription Manager Richard Siggee
Distribution COMAG (01895) 444055
Deputy Managing Director Steve Turnbull
Managing Director Sharon Henderson

Subscriptions:
0870 6060424
E-mail: subscrip@acornuser.com
13 issue subscription rate: £45.99 (UK), £51.99 (EU), £63.99 (World)

Acorn User is available as speech from the Talking Newspaper Association UK

Internet Services provided by Argonet, www.argonet.co.uk

CTA Direct

For all your computing needs.

RiscStation — RISC OS compatible products for the new Millennium · EPSON · Acorn · Seagate · hp invent · iomega · Canon · Quantum

C T A Direct
Dept. AU05
168 Elliott St.
Tyldesley
Gtr. Manchester
M29 8DS

Email : sales@cta.u-net.com   Web : www.cta.u-net.com   Tel : 01942 797777   Fax : 01942 797711

0% Interest FREE credit (6 months)
or LOW cost finance / leasing **on all new systems**
inc. peripherals, software & 2/3 yr optional warranties (min. deposit 10%)

Check with **CTA DIRECT** for the BEST prices in the **RISCOS** world. (Even against alleged trade only suppliers).

RiscStation 1999 2000

RISC OS compatible products for the new Millennium

RiscStation neTWORX



Networx base from only
£399 + Vat (£468.83)
L.C. Finance £15.32 / month

RiscStation neTWORX HD

Networx HD base only
£449 + Vat (£527.57)
L.C. Finance £17.24 / month

(monitors extra e.g. i.e. 15"system £499 + VAT) **Finance £19.16 / month ring for more details**
50 mip Arm7500 system with 8Mb memory, built in ZIP drive support, Midi support, 3D sound, & sampler support, 10baseT port as standard, RISCOS 4 as standard, High speed serial , High speed parallel, expandable to **256Mb** memory & hard drive / CD-ROM etc.

RiscStation Lite R7500

RiscStation Lite base from
£499 + Vat (£586.33)
L.C. Finance £19.16 / month



RiscStation Lite R7500+

RiscStation Lite+ base from
£579 + Vat (£680.33)
L.C. Finance £22.23 / month

Over £500 worth of FREE SOFTWARE

50 mip Arm7500 system with minimum16Mb memory, 4Gb hard drive, 48x CD-ROM, built in ZIP drive support, Midi support, 3D sound, & sampler support, 80w speakers, 10baseT port as standard, RISCOS 4 as standard, High speed serial , High speed parallel, expandable to 256Mb memory.

R7500 with 16MB memory & 4G Hard Drive			
R7500 base only	£499 + Vat	(£586.33)	(£19.16)
15" monitor system	£599 + Vat	(£703.83)	(£22.99)
17" monitor system	£649 + Vat	(£762.58)	(£24.91)
19" monitor system	£749 + Vat	(£880.08)	(£28.75)

Also available the LitePlus with 64MB / 8G HD			
LitePlus Base only	£579 + Vat	(£680.33)	(£22.23)
LitePlus 15" system	£679 + Vat	(£797.83)	(£26.06)
LitePlus 17" system	£729 + Vat	(£856.58)	(£27.98)
LitePlus 19" system	£829 + Vat	(£974.08)	(£31.82)

Internet Packs

available for all machines include Internet software, ISP setup and 56K modem
from £85 + VAT (£99.88)

Acorn SA 233 T RiscPC

from £860 inc VAT
or **£28.10 / month via L.C.F. & we will match or beat your best offer**
We can supply any combination or configuration you require.

Acorn SA Web Wizard

£1099 + VAT (inc. RiscOS 4)
34Mb / 8G / DvdCD as CD Rom / Ant Internet & Jarva with a 56K modem (monitor extra).
On L.C.F. for only £42.19 / month

Acorn A7000 + Series

A7000+ Classic 29 Mips RO3.7 8M / 1G HD /no CD £449.00 (£527.58) (£17.24)
A7000+ Classic 29 Mips RO3.7 16M / 2G HD / 24x CD £499.00 (£586.33) (£19.16)
A7000+ Odyssey NETWORK 50 Mips RO3.7 (4.0) 16M £499.00 (£468.82) (£19.16)
A7000+ Odyssey CD 50 Mips RO3.7 (4.0) 16M / 4G HD /40x CD £549.00 (£645.08) (£21.07)
A7000+ Odyssey Primary or Sec. Pack 50 Mips RO3.7 (4.0) 16M / 4G HD /40x CD £599.00 (£703.83) (£22.99)
A7000 + Odyssey Surf 50 Mips RO3.7 (4.0) 16M / 4G /DVD £699.00 (£821.33) (£19.16)
Above prices do not include monitors please see separate price list

MONITORS

	Ex VAT	Inc VAT
15" LCD (3yr on-site)	£629.00	£739.08
18" LCD (3yr on-site)	£1835.00	£2156.12
14" SVGA 0.28 (3yr on-site)	£79.00	£92.83
15" SVGA 0.28 (3yr on-site)	£95.00	£111.62
15" SVGA 0.28 Multi-Media	£119.00	£139.83
17" SVGA 0.28 (3yr on-site)	£139.00	£163.33
19" SVGA 0.26 (3yr on-site)	£249.00	£292.57
21" SVGA 0.25 (3yr on-site)	£540.00	£634.50
38" SVGA M M (1yr on site)	£1250.00	£1468.75
15" Iiyama Vision Master 350	£140.00	£164.50
17" Iiyama Vision 700	£149.00	£175.08
17" Iiyama Vision Master FST	£235.00	£276.12
17" Iiyama Pro 410	£249.00	£292.57
19" Iiyama Pro 450	£390.00	£458.25
22" Iiyama Pro Diamondtron	£630.00	£740.25
AKF52 Multisync 14" 1yrRTB	£149.00	£175.08
AKF12 PAL 14" refurb 90 days	£49.00	£57.58
AKF52/53 M/sync refurb 90 days	£99.00	£116.32
AKF60 SVGA 14" refurb 90days	£59.00	£69.33
Multisync A300/A3000 cable	£8.50	£9.99

All monitors inc 3 yrs wty unless specified

BEST PRINTER PRICES

		Ex VAT	Inc VAT
Canon BJC 1000 colour	A4	£59.00	£69.33
Canon BJC 2000 colour #	A4	£75.00	£88.12
Canon BJC 2000 Scan #!	A4	£139.00	£163.33
Canon BJC 4650 colour #	A3	£222.00	£260.85
Canon BJC 4650 Scan #!	A3	£275.00	£323.12
Canon BJC 7000 colour #	A4	£165.00	£193.87
Epson Stylus 460 colour	A4	£69.00	£81.08
Epson Stylus 660 colour	A4	£85.00	£99.87
Epson Stylus 860 colour	A4	£165.00	£193.87
Epson Stylus 1520 colour	A3	£340.00	£399.50
Epson Stylus Photo 750 #	A4	£159.00	£186.83
Epson Stylus Photo EX #	A3	£225.00	£264.37
HP 610C colour	A4	£69.00	£81.08
HP 895CXI colour	A4	£169.00	£198.58
HP LASERJET 1100		£249.00	£292.57
HP LASERJET 2100 PCL		£454.00	£533.45
HP LASERJET 2100 PS		£514.00	£603.95
Photo drivers for #		£58.72	£69.00
Scanner drivers for !		£29.79	£35.00

FREE Acorn driver by request

HARD DRIVES / SUB-SYSTEMS

	A3020		A30X0 & I/F	
	Ex VAT	Inc VAT	Ex VAT	Inc VAT
60/80MB	£39.00	£45.83	£79.00	£92.83
170MB	£49.00	£57.58	£89.00	£104.57
340MB	£59.00	£69.33	£99.00	£116.32
500MB	£79.00	£92.83	£119.00	£139.83
810MB #	£99.00	£116.32	£125.00	£146.87
1.0Gb #	£109.00	£128.08	£134.00	£157.45
2.1GB #	£123.00	£144.53	£149.00	£175.08
3.2GB #	£129.00	£151.58	£155.00	£182.12
4.3GB #	£149.00	£175.08	£175.00	£205.62

A30X0 version includes CD ROM i/f which can be used in A3020 or A4000. For external A3000 i/f add £20.00 +VAT # includes partitioning software

3.5" IDE Hard Drives

	Ex VAT	Inc VAT
210Mb	£25.00	£29.37
250MB	£30.00	£35.25
420MB	£40.00	£47.00
500MB	£49.00	£57.58
2.1GB #	£60.00	£70.50
4.3GB #	£69.00	£81.08
8.4GB #	£75.00	£88.12
10.2GB *	£80.00	£94.00
16.8GB *	£95.00	£111.62
20.1GB *	£99.00	£116.32
30.5GB *	£139.00	£163.33
36.4GB *	£220.00	£258.50

requires RISCOS 3.6 /3.7 * requires RISCOS 4 or Partitioning s/w for only £25.00 + vat

SCSI HARD DRIVES

1Gb	£50.00	(£58.75)
2Gb (7200 rpm)	£90.00	(£105.75)
4.3Gb (5400 or 7200rpm)	£135.00	(£158.63)
9.1Gb (7200rpm)	£160.00	(£188.00)
18.6Gb (7200 rpm)	£250.00	(£293.75)
36.4Gb (7200 rpm)	£540.00	(£634.50)

For EXT. SCSI 1 case £50.00 + VAT (inc. cable)
For EXT. Dual SCSI 1 case £65.00 + VAT (inc. cable)
For EXT. SCSI II case £55.00 + VAT (inc. cable)

Removable Drives

IDE LS120 int	£45.00	(£52.88)
IDE Zip 100 int	£55.00	(£64.63)
IDE Zip 250 int	£119.00	(£139.83)
IDE 2.2 GB Orb	£175.00	(£205.63)

IDE require drivers or Suitable hardware support

Parallel Drives including RISCOS Software

Zip 100	£99.00	(£116.33)
Zip 250	£135.00	(£158.63)
Jaz 2G	£299.00	(£351.33)

SCSI Drives

Zip 250M ext	£115.00	(£135.13)
Nomai 750(270&135sq)	£159.00	(£186.83)
Jaz 2G int	£235.00	(£276.13)
Jaz 2G ext	£235.00	(£276.13)

Removable Drive media

	ex VAT	inc VAT		ex VAT	inc VAT
CDR CD-ROM	£.99	£1.16	100Mb Zip	£7.50	£8.81
CDR 10 pack	£8.50	£9.99	Zip 5 pack	£34.00	£39.95
CDR 25 pack	£18.72	£22.00	250Mb Zip	£12.76	£14.99
CDR 80min 10 pck	£12.00	£14.10	120M LS 120	£5.10	£5.99
CDR 80min 25 pck	£25.53	£30.00	650Mb PD	£19.00	£22.33
CDR/W CD-ROM	£3.00	£3.53	750Mb Nomai	£38.00	£44.65
CDR/W 10 pack	£25.00	£29.37	1Gb Jazz	£58.00	£68.15
CDR/W 25 pack	£50.00	£58.75	2Gb Jazz	£69.00	£81.08
5.2Gb DVD RAM	£25.00	£29.37	2.2GB ORB	£33.00	£38.78

RISC OS 4

£99.00 (£116.33)

Fitting & data transfer, if required, £25 inc or £15 with new HD

CD-ROM WRITERS



Prices Start from £139.00 +

4x4x16x Yamaha	£139.00	(£163.33)
6x4x16x Yamaha	£169.00	(£198.58)
6x4x24x Memorex	£189.00	(£222.08)
CD-BURN	£49.00	(£57.58)
CD-SCRIBE 2	£49.00	(£57.58)

CD-ROMS



SCSI 8x **Autochanger** £75.00 + vat (£88.13)

IDE			SCSI		
48x	£39.00	(£45.83)	40x	£65.00	(£76.38)
40x	£35.00	(£41.13)	32x	£55.00	(£64.63)
8x	£30.00	(£35.25)	8x	£30.00	(£35.25)

IDE driver for Risc OS 3.5 £15 + vat
IDE int. fitting kit £5 inc. Int. SCSI fitting kits from £10 + vat

External CD ROMs

40x CD Tower (6 SCSI drives) space for HD £449 + VAT

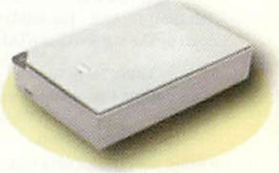
40x IDE (with cable)	£85 + VAT
8x SCSI I (with cable)	£85 + VAT
40x SCSI I(with cable)	£115 + VAT
40x SCSI II(with cable)	£120 + VAT

Desktop FAX MODEMS

56k x2/V90 3Com USR	£99.00	£116.32
56k Flex/V90 (Rockwell)	£49.00	£57.58
ISDN modem (external)	£79.00	£92.83
ANT Internet Suite	£110.00	£129.25
Webster XL	£21.28	£25.00
Messenger Pro	£25.53	£30.00
!Java CD	£33.19	£39.00
ArcFax Fax software	£26.38	£31.00

COLOUR SCSI SCANNERS

All scanners inc Acorn Software



P'llel Mustek 600dpi	£99.00	£116.32
Mustek A4 600dpi	£119.00	£139.83
Mustek A4 1200dpi	£149.00	£175.08
Epson GT7000	£199.00	£233.83
Epson GT7000P	£249.00	£292.57
Epson Perfection	£212.00	£249.10
Epson Perfection P	£275.00	£323.12

ImageM & Twain also available separately

Interface Adapters

EESOX SCSI 32-bit DMA	£109.00	£128.08
Storm SCSI 8-bit (A30x9 int)	£88.00	£103.40
Storm SCSI 16-bit (podule)	£96.00	£112.80
Storm SCSI 32-bit DMA (podule)	£128.00	£150.40
Simtec 8-bit (A3000/A3010)	£55.00	£64.63
Simtec 16-bit (AX00/A5000/RPC)	£45.00	£52.88
APDL 16-bit DMA	£45.00	£52.88
APDL BlitZ 32-bit DMA	£99.00	£116.33
Removable IDE or SCSI housing	£20.00	£23.50
High speed serial cards single	£67.23	£79.00
High speed serial cards dual	£75.75	£89.00
High speed serial cards triple	£84.26	£99.00

3 yr Warranty on ALL Acorn MEMORY why Pay More??

NEW LOWER PRICES

	Ex VAT	Inc VAT
A310 4Mb Upgrade	*£35	£41.13
A310 RISC OS carrier board	*£19	£22.33
A310 MEMC1a upgrade kit	£20	£23.50
A400/1 1Mb Upgrade (per Mb)	£25	£29.38
A3000 1-2Mb Non-Upgradeable	£15	£17.63
A3000 1-4Mb Upgrade	£35	£41.13
A3000 Serial Port Upgrade	£19	£22.33
4-8Mb Up. (A310, 440, 3000*)	£55	£64.63
A3010 1-2Mb Upgrade	£20	£23.50
A3010 1-4Mb Upgrade	£45	£52.88
A3020/4000 2-4Mb Upgrade	£40	£47.00
A5000 2-4Mb Upgrade	£45	£52.88
A5000 4-8Mb 25Mz* & 33Mhz	£55	£64.63
NEW A540 4Mb	£45	£52.88
FPA10 for A5000 or Arm 3 Card	£45	£52.88
Replacement VIDC or IOC chips	£20	£23.50
* rework if required	£25	£29.38

Risc OS 3.11 Rom upgrades
£25.00 exc Vat (£29.38)

RISC PC MEMORY *check latest prices*

8Mb SIMM	£10.00	£11.75
16Mb SIMM	£20.00	£23.50
32Mb SIMM EDO	£42.00	£49.35
32Mb SIMM FPM	£49.00	£57.58
32Mb high clearance	£59.00	£69.33
64Mb SIMM	£75.00	£88.12
128Mb SIMM from	£130.00	£152.75
1Mb VRAM	£25.00	£29.37
2Mb VRAM	£75.00	£88.12
1-2Mb (exchange)	£65.00	£76.37

33 Mhz Arm 3 upgrade SPECIAL

with FPA socket	£45.00	£55.88 inc.
FPA 10 (25Mhz)	£84.26	£99.00 inc.

RPC 16 bit Audio & mixer £59

NETWORKING

ETHERNET INTERFACES

	Ex. VAT	Inc VAT
A3000 int. 10base2 or T, Access+	£89.00	£104.58
A400/A5000 10base2 or T Access+	£89.00	£104.58
A400/A5000 10base2 & T Access+	£99.00	£116.33
A3020 10base2 Access+/ext. MAU	£94.00	£110.45
A3020 10baseT Access+/etx. MAU	£94.00	£110.45
Risc PC/A7000 10base2 & T Acc+	£99.00	£116.33
Risc PC/A7000 10base2 Access+	£79.00	£92.83
Ant Access + ROM upgrade	£10.00	£11.75

Network Hubs *(more available)*

	Ex VAT	Inc VAT
8 Port 10bT +1 10b2	£35.00	£41.12
8 Port 100 *special*	£89.00	£104.57
8 Port 100/10 Auto	£99.00	£116.32
18 Port 10 16T+ 2BNC	£75.00	£88.12
16 Port 100/10 Auto	£229.00	£269.07
16 Port 100/10 Auto (inc 3 port switch)	£269.00	£316.07
24 Port 100/10 Auto	£299.00	£351.32
24 Port 100 *special*	£249.00	£292.57

Cables

2M	£3.00	£3.53
3M	£5.00	£5.88
5M	£6.00	£7.05
10M	£10.00	£11.75
20M	£15.00	£17.63

State 10base2 or 10baseT
any size made to order

We supply and / or install all network components please ring for your requirements

NETWORKING SOFTWARE

Topcat site licence	£489.00	(£587.50)
NTfiler site licence	£97.00	(£113.98)
Omniclient site licence	£489.00	(£587.50)
Lanman98 single user	£35.00	(£41.13)
Win95FS single user	£35.00	(£41.13)
Lanman or Win95FS 10 user site licence	£110.00	£129.25
Lanman or Win95FS 20 user site licence	£156.00	£183.30

MICE & KEYBOARDS

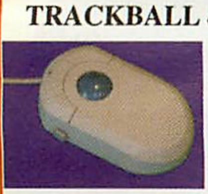


High Quality Acorn ERGO Mouse £12.00 (£14.10)

	Ex. VAT	Inc. VAT
Acorn Trackerball/Mouse NEW	£29.78	£34.99
Acorn Original Mouse	£20.00	£23.50
Acorn ERGO Mouse NEW	£12.00	£14.10
A7000 replacement Mouse NEW	£10.00	£11.75
Ergo (std) Risc PC Keyboard	£21.28	£25.00
Ergo curved Risc PC Keyboard	£29.78	£34.99
Lower CASE Keyboard (PS2)	£29.78	£34.99
A400/A5000 replacement K/brd	£59.00	£69.33
A400/A5000 Ergo Keyboard	£69.00	£81.08
A4 replacement keyboard	£49.00	£57.58
A4000 Keyguard (special needs)	£25.00	£29.37
A3000 /A300,400,500 Keyguard	£25.00	£29.37
A3 touchpad for Concept Keybrd	£25.00	£29.37

Cooling Fans	Ex VAT	Inc VAT
Fan for A310/400	£15.00	£17.62
Fan for RPC psu / A7000	£15.00	£17.62
Fan for PC-Co processor	£4.00	£4.70
5.25" Hard Drive fan kit	£15.00	£17.62

ACORN MKII TRACKBALL & MOUSE



£29.79 + (£35.00)

Replacement Floppy Drives

A3000/400/500 £29.00+vat (£34.08)
A30X0/4000/5000 floppy allows cross - formatting of HD and DD discs £29.00+vat (£34.08)

POWERED SPEAKERS

	Ex. VAT	Inc VAT
80 watts with PSU	£8.50	£9.99
240 watts with PSU	£17.00	£19.98
380 watts with PSU	£21.00	£24.68
Subwoofer system	£42.00	£49.35

Character Mouse Mats

Southpark Kenny	£4.99
Southpark Cartman	£4.99
Disney Mickey, Pooh, Donald, etc	£4.99
X-Files (four types)	£4.99
Garfield or novelty	£4.99
Standard mat £1.00 / Econ. £0.65	

Switch Boxes

2-1 with cable	£15.00	£17.63
2-1 Auto with cable	£15.00	£17.63
4-1 with cable	£19.00	£22.33
2-1 Monitor/K'board	£29.79	£35.00

We stock Printer Ribbons, Inkjet Cartridges New/Recycled Laser Toner Carts
Prices available on request

Consumables

Premier Quality Ink Refills

Single refills	(1x22ml)	£5.10	£5.99
Twin refills	(2x22ml)	£8.50	£9.99
Triple refills	(3x22ml)	£11.91	£13.99
Tri- Colour	(C.M.Y)	£12.76	£14.99
Quad-Colour	(C.M.Y.K)	£17.01	£19.99
125 ml		£17.86	£20.99
250ml		£32.33	£37.99
500ml		£42.55	£50.00
1 litre		£59.57	£69.99

All sizes available in C.M.Y.K

FLOPPY DISKS @ 15p!!

	Ex VAT	Inc VAT
DD Re-label Acorn fmt 10	£2.00	£2.35
DD Re-label Acorn fmt 100	£17.02	£20.00
HD Re-label Ac'n or PC 10	£1.50	£1.76
HD Re-label Ac or PC 100	£12.77	£15.00
HD bulk Acorn or PC 10's	£2.00	£2.35
HD bulk Acorn or PC 100	£17.02	£20.00
HD Branded 10 pack	£3.00	£3.53
20 cap Disk Box	£1.69	£2.00
40 cap Disk Box	£2.54	£2.98
100 cap Disk Box	£2.98	£3.50
Mouse cleaner	£4.99	£5.86
3.5" Floppy head cleaners	£2.50	£2.94
CD-ROM cleaner	£4.25	£4.99
CD-ROM Lens cleaner	£4.25	£4.99
15 cap CD-ROM box	£6.50	£7.64
24 cap CD-ROM wallet	£5.95	£6.99
20 cap CD-ROM wallet	£4.25	£4.99
20 cap CD-ROM tower	£4.25	£4.99

Network Specials

TOPCAT Site licence £450 (£528.75)
!Browse Site Licence **£170 (£199.75)**
(Offers available while special stocks last)

ARCSHARE

Acorn networking for PCs
£29.95 exc Vat £35.19 inc Vat
see network section for Cards etc

Hard Drive Specials

A3000/A3010 170mb
HD & I/F £69 + Vat (£81.08)
270mb HD & I/F £76 + Vat (£89.30)
(Offers available while special stocks last)

A selection of 2nd user 40 , 80 , 120 & 200 MB drives is available at only 10p / MB ie £12.00 + Vat (£14.10)

We can repair/upgrade your machine(s) and monitors at competitive prices please ask
All Acorn's, BBCs & PCs

Digital Camera Specials

prices include Photolink software

Olympus C-21	£510.63	£599.99
Olympus C-2000	£595.74	£699.99
Olympus C-2500	£1021.27	£1199.99

(All Prices below include VAT) **THE BARGAIN BASEMENT** ***Check the Software Network***

Various Hardware Bargains

		exc VAT	inc VAT
A3000 2Mb bases from	#	£45.00	£52.87
A3010 2Mb bases from	#	£79.00	£92.83
A3020 2Mb bases from	#	£99.00	£116.32
A4000 2Mb bases from	#	£140.00	£164.50
A5000 4Mb bases from	#	£210.00	£246.75
RPC 700 bases from	#	£399.00	£468.83
SCSI 4x6x autostacker (new)		£125.00	£146.88
A310 /400 Floppy drives	#	£12.00	£14.10
A3000 / A400/1 Floppy drive	#	£12.00	£14.10
A30X0 keyboards	#	£20.00	£23.50
A3000 PSU's	#	£20.00	£23.50
A30X0 /4000 midi /user card	#	£30.00	£35.25
A30X0 analogue / user card	#	£20.00	£23.50
A30X0 IDE / user port cards		£40.00	£47.00
A30X0 Castle IDE cards		**£35.00**	**£41.12**
A3000 Dual Podule expan.	#	£30.00	£35.25
A4000 PC card boxed	#	£35.00	£41.12
A4000 Motherboards (new)		£70.00	£82.25
Scanlight 256 hand scanner	#	£42.00	£49.35
VIDC Enhancer		£17.00	£19.98
RiscPC 486sx33 PC cards	#	£25.00	£29.37
A5000 /A400 Ext CD-ROM	#	£42.00	£49.35
A5000/4000 Joystick Cont.		£20.00	£23.50
BBC Printer cables		£4.00	£4.70
BBC master PSU		£10.00	£11.75

all 2nd user items 90 days Wty

Acorn Software Bin

£5.00 or under (prices inc. VAT)

Boxing Manager	£5.00
ColourSep (Colour Separation Software)	£5.00
D'File Font Pack (Academy)	£5.00
D'File Font Pack (Balmoral)	£5.00
D'File Font Pack (FreeStyle Script)	£5.00
D'File Font Pack (Manhattan)	£5.00
D'File Font Pack (Mastercard)	£5.00
D'File Font Pack (Old Towne 536)	£5.00
Jahangir Khan Squash	£5.00
Outline font (BookM)	£5.00
Quest for GOLD	£4.00

£10.00 or under (prices inc. VAT)

10 out of 10 any title	£9.00
Arm Tech Labeller	£9.00
Arm Tech ClipArt (various per pack)	£8.00
Diary +	£8.00
FIRE and ICE	£10.00
Galactic Dan	£10.00
Guile	£10.00
HERO QUEST	£10.00
My World Support Disc Ancient Egypt	£10.00
My World Support Disc Ancient Greece	£10.00
Wavelength	£10.00
World Class Leaderboard (GOLF)	£10.00
Zool (HD)	£10.00

Acorn Software Bin

£15.00 or under (prices inc. VAT)

A3010 Joystick Controller Software	£15.00
ChildPlay (desktop frontend)	£14.95
RAMplify	£14.95
Rosie & Jim Talking Activities	£15.00
Small (RPC)	£15.00

10 out of 10 all 18 titles	£69.00
Ancient Lands (M'soft) CD Acorn reader	£45.00
Ankh (HD)	£20.00
Birds of War	£20.00
Clares Cardshop	£20.00
Creator 2	£25.00
Drifter	£30.00
Game ON (for RPC/ A7000)	£15.00
Global Effect	£20.00
Imagery Art Package	£20.00
James Pond (Underwater Agent)	£23.00
Nuclides II and Elements II (save £5.00)	£25.00

CD General Resource Titles

10000 Clip Art (Draw Format)	£5.00
550 Acorn fonts	£5.00
D'File PDCD 5	£10.00
Symphony Music collection	£5.00
TopicArt CD	£5.00

RiscPC PC Cards

DX2-66	£135.00 inc VAT
586-100 (Aleph)	£225.00 inc VAT
586-133 (CJE 512)	£225.00 inc VAT

We have a large collection of Budget PC software suitable for RPC Pc Emulators and PC clones inc, Education, Home, games an utilities please ring for list

Alternative PC Bases

i.e. Siemans P200 MMX from ONLY £249.00 + VAT ring for latest prices.

HOW TO ORDER

BY MAIL or PHONE: Cheques or P.O.s should be made payable to 'CTA DIRECT'.
CREDIT CARD / SWITCH please give name, address, tel. no, card no, expiry date, issue no.
BY EMAIL: sales@cta.u-net.com
OFFICIAL ORDERS by MAIL or FAX please
Carriage charges inc. ins. & packaging charged at cost
Small items (under 2Kg).....no more than £6 + vat
One box of items totalling upto 25kg...£6.50 + vat
Computer systems.................................£13 + vat
All prices are correct going to press. E&OE
All goods are fully guaranteed but not supplied on approval

Risc PC rebuilt?

Castle have announced that not only have they stepped into the Internet market place with a totally new browser, but have also been developing newer and much faster Risc PC machines.

While the details of the new machine are still sketchy, the Risc PC's are still expected to be using the ever-green StrongARM 233 revT boards and RISC OS 4, but with some modifications to improve the performance.

Oregano is the name of Castle's much awaited browser. Developed by Oregan (hence the name!) for their range of NetStations, this new browser includes the latest version of JavaScript, SSL, is HTML 3.2 compliant, able to upload over the Web (up until now, only supported in part by Fresco) and is RISC OS plug-in compliant – meaning that you can still use the plug-ins supplied by Acorn such as Java.

Jack Lillingston, MD at Castle said "We are delighted to bring this news to the RISC OS world. This product marks the start of a new progressive development plan. You can expect to see further major new hardware over the coming years." Commenting on Oregano, he said "The release of Oregano is further proof of our commitment to bringing top quality products into the RISC OS Market. We have worked hard to ensure that it has all the power needed for the most demanding user, yet remains friendly enough for the beginner to pick up and use with confidence."

Combined with the full-time support team keeping up to date, this looks to be one of the most promising developments in the internet scene for RISC OS machines in a long time. The software will be installed on all new Castle machines after it's release.

The browser is expected to retail at about £50.

For further details, contact Castle on 01728 723 200, or email sales@castle.org.uk



Free security for all

Just as the current edition of *Acorn User* was going to press, Andrew Rawnsley of R-Comp contacted us to say that their new 128-bit SSL module is available now to download from their web site (**www.rcomp.co.uk**). The software is supplied as a module, providing SWI calls for software developers to use within their software.

R-Comp have also told us that they will have an updated version of their popular WebsterXL package incorporating the SSL module available for Wakefield.

Also in the pipeline, being developed by programmers all over the country, are other secure socket layer applications (such as secure Telnet). This new version of *WebsterXL* will also include the ability to upload over the web, something emphasised by the Government in its current drive to get all schools online.

Andrew stated that the module is free to download to anyone outside of the UK and is allowed to be exported to "friendly" foreign countries. This has been cleared by the DTI.

R-Comp can be contacted on 01925 755043.

G'day POSsums

No, we haven't been watching too many Australian soaps. What we are talking about is the RiscStation assault on the point of sale (POS) market with an R7500Lite based POSsum terminal.

What is POSsum?

A POS terminal is the hardware behind barcode readers at your local ASDA. In the RiscStation case, it's a stripped-down Lite with four serial ports and 2 x 7.5v power take-off jacks for standard POS peripherals (such as cash drawers and bar code readers). Another trick feature is the intercom system which works over ethernet, taking full advantage of the hardware.

While not so much the case here in the UK (yet!), quite a lot of businesses in Australia use RISC OS computers behind the scenes – not where the consumer can see them. In the RISC OS world, we have long known that advertising is probably our worst facet. The POS terminal may help to change this.

Mal McClenaghan of RiscStation Australasia commented to us "Until the RiscStation Lite arrived, a RISC OS-based POS terminal was simply not going to be a practical venture. The costs involved in expanding a standard machine to what we needed were prohibitive. The standard 10baseT Networking and the ISA slot on the Lite gives us the facilities we need without going to any great expense"

The software for the system has been created by Image Software here in the UK. Called EBMS (Electronic Business Management System), it caters for Australia's complex new GST system without sacrificing any of the software's functionality for it's native VAT. This means that by changing "OZ" to "UK" in the software configuration means that businesses here can use the same software.

Seen as a real threat to PC-based POS systems, EBMS has all the same functionality. On top of that, there is support for the rental sectors, facility for creating customer membership/loyalty cards. More than that though, is the addition of barcode creation, printing and network support for multiple terminals, the unique ActivPromo™ time/item scripted discount system ("three for the price of two" to you and me or end of the day special offers) – it's easy to see this is a formidable package.

ActivPromo can be seen as a businessman's friend. Not only does it cut down on loss ("who want's excess cream cakes over at the end of the day that have to be thrown out") but as all is required to change the EBMS software is a change in a script file.

Further details on the hardware are available from RiscStation (**www.riscstation.co.uk** or **www.riscstation.com.au**) with software from Image (**www.argonet.co.uk/image/**). If you don't have Net access, why not see it in action at the RiscStation stand at Wakefield?

AU CD 9 problems

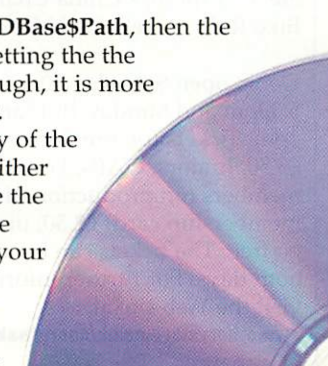
A few people have commented on empty directories on the last Acorn User CD. We are currently looking into this problem. Hopefully, any missing areas will be on the 10th CD.

There has been some discussion in the comp.sys.acorn.misc newsgroup over a problem between the CD and *Pluto* and also running the *AU_Start* file giving an "can't find InetDbase" error. While we are not sure what the conflict is between *Pluto* and *Fresco* (as they can be both used together normally), the InetDbase problem is simpler to solve.

Inside the *!Boot* directory is another directory called *Resources* and inside that an application called *!Internet*. The InetDBase points to this but unfortunately some versions of the *Boot* structure don't have it. A simple test to determine if this application exists is to do the following

1. Press F12
2. Type at the * prompt
`show inet* (return)`
3. If the computer lists **InetDBase$Path**, then the directory is there. If you are getting the the InetDBase not found error though, it is more likely that this will not appear.
4. On the AU CD 8 is a copy of the new *!Boot* structure. You can either install this or copy from inside the *!Boot* application on the CD the *!Internet* application to inside your own *!Boot*.

On the 10th AU CD will be an application which will install the *!Internet* application for you.



Wakefield 2000

The Acorn RISC OS Show

It must be considered an great achievement for the Wakefield Acorn Computer (User) Group that this is their 5th annual RISC OS show (which is to be held again at the Thornes Park Athletics Stadium). And what a show it promises to be with all the major players in the RISC OS market place in attendance (such as Castle, RiscStation, MicroDigital, Millipede and of course, RISCOS Ltd), and with many new products which will be available, it is surely a testimony to the resilience of the platform.

Super show software

In addition to new hardware, there will be a pile of new software available:

- Castle Technology will be selling their new *Oregano* Web browser (see other story);
- Spacetech will be showing the latest digital cameras with PhotoLink and PhotoReal drivers;
- RISC OS Ltd will have the much awaited new version of *Printers* available.
- Old favourites like *Sibelius* and *Impact-3* will be demonstrated.

Another old favourite was the Lucky Dip of the old "Micro User" shows. *Acorn User* (in association with RISC OS Charity Projects who are selling both the Kosovo CD and China CDs) are reviving this. Tickets cost £1 per dip with a very valuable prize each day and other significant prizes of RISC OS hardware and software. Not all tickets will be winners, but the proceeds go to Steve Turnbull's China Charity Bike Ride on behalf of Mencap.

Doors open Saturday 10am to 5.30pm and Sunday 10.15am to 4pm. Tickets (on the door): Adult £3.50; Juniors, OAPs, Foundation members (on production of membership card) £2.50; under 5s go free. The tickets can be used on both days. For further information visit the Web site at: **www.cybervillage.co.uk/acorn/wakefield** or e-mail: **show2000@cumbrian.demon.co.uk**

Wakefield Acorn Computer Group Formed 1983

Cerilica will be showing off their new "Vantage" art package and also have copies available for sale. The wait is now over.

We will have our games arcade again (supported by R-Comp and RiscStation) – in the past, this has been a very popular area and this year, with the advent of the *Chaos Engine*, it looks to be busier than ever.

Hardware will be well represented at the show with Castle showing off their new, faster Risc PC range and optimised A7000+ machines, RiscStation selling their new range of NetWORX and NetWORX HD machines plus the brand new RiscStation Scorcher, Scorcher Twindeck CD Authoring systems and RiscStation EPOS system (see other story).

On the back of the world wide success of "Who wants to be a millionaire?", Millipede Electronic Graphics will be demonstrating the revolutionary Imago board and MicroDigital demonstrates their Mico range.

Show Theatre

As ever, the show will also have the regular development theatre on the first floor. The schedule (at going to press) is

Saturday 20th May		
11.00	RiscStation	RiscStation presents...
12.15	Cerilica	Cerilica into 2000
13.15	Castle Technology	New Acorn Developments
14.15	Millipede Electronic Graphics	Imago
15.00	Mike Cook	*Subject to be confirmed*
15.45	RISCOS Ltd	What's new at RISCOS
16.30	Castle Technology	New Acorn Developments
Sunday 21st May		
10.30	Mike Cook	*Subject to be confirmed*
11.10	RiscStation	RiscStation presents...
12.20	Cerilica	Cerilica into 2000
13.15	Castle Technology	New Acorn Developments
14.10	Millipede Electronic Graphics	Imago
15.00	RISCOS Ltd	What's new at RISCOS

Two new hardware packs from

RiscStation

More memory, more storage, more value!

RiscStation Lite R7500+



56 Mhz ARM7500FPE (with integrated floating point co-processor)

RISC OS 4.03

64Mb 60ns EDO System Memory

48X Atapi EIDE CD ROM Drive

8.4Gb EIDE Hard Drive

4/6Mb ROM/Flash Memory containing RISCOS 4 and Utilities

Micro ATX Desktop or Mini/Midi Tower Configuration

Minimum 60 Watts External Stereo Speakers

2 x Serial Port *Rated at 460k baud*
2 x PC Style Game Port supporting Midi In/Out/Through
2 x High Speed EIDE Ports *Supporting up to 4 devices*
1 x 10baseT Network Port with Wake On Lan Support
1 x EPP/ECP Fast Parallel Port
1 x IRDA Infrared Interface Support
1 x High Density Floppy Drive Port
1 x 15Pin VGA Connector

Full 16Bit OPL3 Stereo Sound Sampler & Mixer with FM Synthesizer support, 2 CD Mixer Ports 3 x 3.5mm Jack Sockets for Line in/Mic In/Headphone & Speaker Out

PS2 Style Keyboard Input
PS2 Style 3 Button Mouse Input

Easi Writer Pro, DrawWORKS Millenium, Fireworkz Pro, Ankh, Botkiller II and much more free software.

From £579 + VAT

RiscStation neTWORX HD



56 Mhz ARM7500FPE (with integrated floating point co-processor)

RISC OS 4.03

8Mb 60ns EDO System Memory

2.1Gb EIDE Hard Drive

4/6Mb ROM/Flash Memory containing RISCOS 4 and Utilities

Micro ATX Desktop or Mini/Midi Tower Configuration

2 x Serial Port *Rated at 460k baud*
2 x PC Style Game Port supporting Midi In/Out/Through
2 x High Speed EIDE Ports *Supporting up to 4 devices*
1 x 10baseT Network Port with Wake On Lan Support
1 x EPP/ECP Fast Parallel Port
1 x IRDA Infrared Interface Support
1 x High Density Floppy Drive Port
1 x 15Pin VGA Connector

Full 16Bit OPL3 Stereo Sound Sampler & Mixer with FM Synthesizer support, 2 CD Mixer Ports 3 x 3.5mm Jack Sockets for Line in/Mic In/Headphone & Speaker Out

PS2 Style Keyboard Input
PS2 Style 3 Button Mouse Input

Networx software pack.

From £449 + VAT

RiscStation Ltd.
168 Elliott Street
Tyldesley
Manchester
United Kingdom
M29 8DS

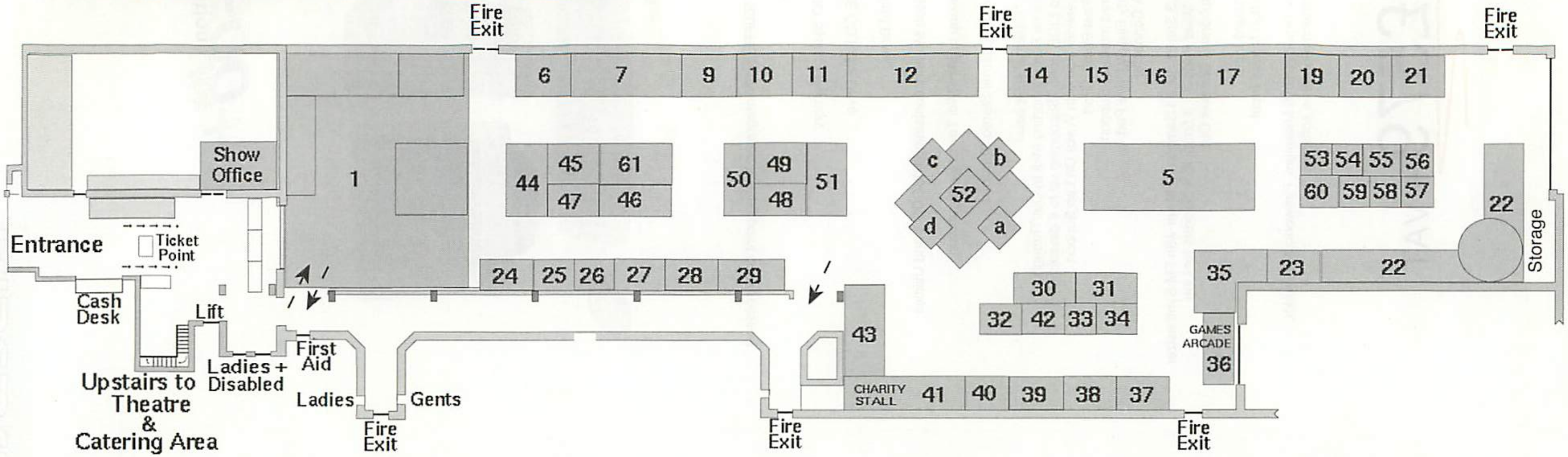
RiscStation 1999 2000
RISC OS compatible products for the new Millennium

Tel : +44 (0) 1942 797777
Fax : +44 (0) 1942 797711

Email : info@riscstation.co.uk
Website : www.riscstation.co.uk

Wakefield 2000

The Acorn RISC OS Show



1	Castle Technology Ltd	22	RISCOS Ltd	37	Artex Software	52	RiscStation
5	Cerilica	23	ExpLAN Computers Ltd	38	Reflex Electronics Ltd	52	Simtec Electronics
6	ARM Club	24	Archive Magazine	39	Si-Plan Electronics Research	53	Jon Duddington
7	MicroDigital Ltd	25	Apricote Studios	40	Wakefield Hospice	54	Zenta Multimedia
9	Liquid Silicon	26	RISCOS Charity Projects	41	Charity Stall	55	Cd Computing
10	Desktop Projects	27	Warm Silence Software	42	RiscAction Magazine	56	Paradise Software
11	Acorn Publisher	28	Stuart Tyrrell Developments	43	Davyn Computer Services	57	Chris Morison (Organizer)
12	CTA Direct	29	CJE Micro's	44	APDL	58	David Buck (RiscCad)
14	Spacetech	30	Electronic Font Foundry	45	Risc World Magazine	59	Serious Statistical S/ware
15	Acorn User	31	Softease Ltd	46	Millipede Electronic Graphics	60	Really Good Software Co
16	Aleph One Ltd	32	Granada Learning/SEMERC	47	iSV Products	61	Cumana/Cannon Computing
17	ArgoNet	33	Softrock Software	48	Eesox		
19	The Data Store	34	Sound Venture	49	Wakefield Acorn Computer Gp		
20	Derby Area Risc Club	35	R-Comp/R-Comp Interactive	50	Icon Technology		
21	Assn of Acorn User Groups	36	Games Arcade	51	Clares Micro Supplies		

Stands 53 to 60 form the Small Developers Village and are subsidised by RiscStation Ltd

Still waiting for the bugs to be fixed in RISC OS 4 before you upgrade?

Yes: We use Acorn Advance at school and tha doesn't work does it!

Oh yes it does! Acorn Advance is now fully compatible with RISC OS 4 thanks to a patch that is available from Clares Micro Supplies Web Site.
`http://www.claresmicro.co.uk/`

Great, but no-one is developing new software, and I can't do my Internet Banking on my Acorn.

Oh yes they are! Softease, for one, are developing a major new educational title, Cerilica will be launching Vantage very soon and new versions of TechWriter and EasiWriter come out so fast, it's unbelievable!

As far as Internet Banking is concerned, you can now get 128bit SSL support for the ANT Internet Suite / Voyager, and Castle will soon be launching a brand new Web Browser.

Oh, and in case we haven't mentioned it before there are now over 2500 RISC OS 4 users out there now in the England, Scotland, Wales, Ireland, Holland, Germany, France, Belgium, Norway, Sweden, Denmark, Israel, Russia, Iceland, Australia, New Zealand, Hong Kong, Japan, Korea and South Africa (to mention a few)

Is there anything else you are waiting for before you buy RISC OS 4?

Yes, when will RISC OS 5 be out?

Well, if you don't buy RISC OS 4 first, there won't be a RISC OS 5 !

OK, I'm finally convinced. How do I buy RISC OS 4?

Contact your usual RISC OS Dealer or look at the RISCOS LTD web site for an order form, or phone the RISC OS 4 sales line on 029 2049 2324 Mon - Fri 10 - 5

RISC OS 4 costs £120 including VAT and postage.

NB There are bulk discounts for schools ordering 5 or more copies.

AND FOR A LIMITED PERIOD UNTIL 30th MAY SCHOOLS MAY PURCHASE A FULL COPY OF RISC OS 4 FOR EVALUATION FOR ONLY £69 + VAT.
ONLY OFFICIAL SCHOOL PURCHASE ORDERS ARE ACCEPTED FOR THIS OFFER.

RISCOS Ltd

www.riscos.com
Tel 029 2049 2324
Fax 029 2044 0071

RISC OS Gaming

Jan Klose gets steamed

Basically, there is no such thing as the games scene in the RISC OS market. There was one some years ago, but the demand has shifted. Standards are now dictated by PCs and consoles, and people have stopped buying small "fun to play" games. Nowadays, a game must come along with a huge presentation and gameplay that guarantees many hours of entertainment.

There are no RISC OS games companies who can deliver games with such a standard. That is simply down to the fact that a state-of-the-art game requires lots of money and a whole development team, and thus free-time programmers can't and don't want to afford such productions. And that's understandable when watching sales numbers of games released for RISC OS only.

So there are only two possibilities right now to release games on RISC OS: Conversions from the PC, and homegrown games that get their financial support from elsewhere and that's what Artex are doing. Right now we are developing *TEK* and *Iron Dignity*.

Iron Dignity will appear on the PC as well, so we don't have to worry about the copies sold for RISC OS; we just have to cover the costs for the RISC OS development. These are not much higher than those for a 'standard' conversion.

TEK is purely a RISC OS product and will appear for RISC OS first, but PC, Mac and Linux conversions are planned as well, and this option justifies the massive development costs already put into *TEK*. Originally, *TEK* was planned as a joint-venture between Acorn Computers Ltd. and Artex Software, aimed at the NetStation, but when Acorn fired half of their staff, they also scrapped their gaming plans and *TEK* with it.

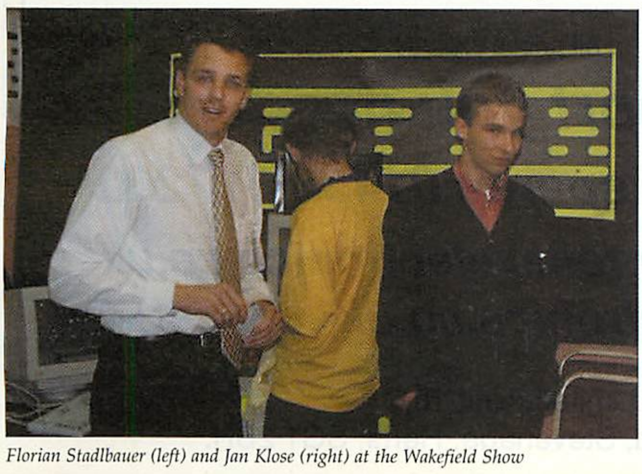


This is why the game hasn't been released so far. But don't be afraid, development is progressing steadily, and if everything goes on as expected, you will be able to see a fine running version of the game at the Wakefield 2000 show.

Depending on the success of *TEK* and *Iron Dignity*, Artex will release further titles for RISC OS. A 'Special Missions' pack for *TEK* is already planned.

Consoles or no?

People who love their RISC OS computer but still want to play games are likely to buy consoles like the Playstation. RISC OS will never offer the variety of games that can be found on a console, and no conversion will appear fast enough to satisfy a waiting gamer.



Florian Stadlbauer (left) and Jan Klose (right) at the Wakefield Show

Don't get me wrong – there are still many people out there who would like to pay for a good "native" computer game, even if RISC OS is not famous as a games platform anymore. But there will always be the demand for some entertainment, no matter what machine you are using, be it a Silicon Graphics computer used for rendering, a Mac for publishing – or RISC OS.

What's a good game?

Despite the desire to receive movie-like games, there's still a small demand to play a game that's just fun. Years ago it was easy to deliver – and sell – such a game, and thus many gamers still have the opinion that any game can be fun that has good gameplay even if it doesn't come with a huge presentation. The answer is that yes, these "simple" games can be much fun, but no, you cannot sell them any more.

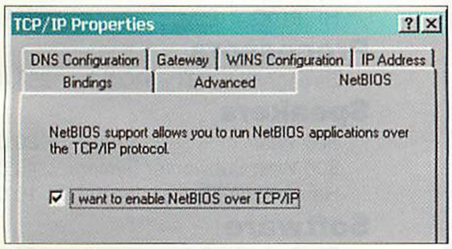
When you look at the PC games world, you will see really great games titles whose presentation comes close to an interactive movie for as little as £5, even though it was released only two years ago. At the same time, you find out that even the oldest games ever released on RISC OS machines are still sold for their original price of £25. Buyers want equality; they are willing to pay for good products, but "good products" is defined differently today.

Again, the conclusion is that the old times of "simple but great" games has passed. Today we want state-of-the-art with loads of great optical effects, or simple funny games that are available for free – or maybe as a shareware product. This is a hard situation for games programmers on RISC OS. So the only solution is to drop one-man projects and concentrate on one or two OS-wide projects, or do conversions. It will be worth it. END

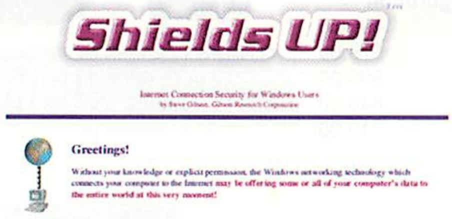
Enemy without

Don't let the joys of unmetered continuous Internet access blind you to some very real security risks. Making Internet connection from networks containing Acorn machines and just one PC can allow ANYONE to access your PC's shared resources from the instant of connection to the Internet! Port scanner software is freely available and you can be sure that someone will try to probe your network and access your shared drives.

The culprit is the PC's NetBIOS Windows protocol used to allow network file and print sharing. RISC OS cross-platform software like Warm Silence's *!LanMan98* and David Buxton's *!SmbServer* use the protocol called TCP/IP to talk to PCs. TCP/IP and NetBIOS are "bound" together by default settings in the PC Networking control panel, and on connecting to the Internet, NetBIOS via TCP/IP can 'blab'



Do you really, really want to?



Keptin, they've opened fire!

your secrets to all enquirers. You should protect all PC shared discs using long alphanumeric mixed case random passwords, which is a pain but you only need to enter them once a session.

Your local network could be isolated from the Internet with a second network card, or even better, using a cheap Linux box as a router. We don't think of Acorn machines as being under surveillance, but PCs certainly seem to be.

Certain shareware *Windows* programs with a freeware option contain self-scheduling routines that attempt to access the Internet while you're online, to download display adverts that pay for the software. If you browse Web pages on your local network, these programs think you're online and can trigger a dial-out without your permission.

You can read and learn more about all these dangers on Steve Gibson's Shields Up! page at **http://www.grc.com**

Shoestring network

David O'Shea's *!PPPserv* is a modem emulator that enables TCP/IP networking between an Acorn machine and a *Windows* PC using the serial ports as the network connection. Compared with volume-produced network interface cards for the PC, the high cost of Acorn NICs makes this technique worth considering, but has to be weighed against the much lower communication speed available. Though if 115,200bps is usable on the Acorn machine, this serial PPP link is considerably faster than a modem connection to the Internet.

Matthew Lee has set up a Web site at **http://www.clementlee.freeserve.co.uk/** to help you set up *!PPPServ* on Acorn machines, and configure the PC networking settings. The wiring of the null-modem serial cable required is shown together with clear set-up details for both new and older Acorn machines. Step-by-step instructions are also given for setting up the PC's networking and dial-up adapter.

The software required for the Acorn *Internet* and *PPP* interfaces is listed, almost all of which has featured on past and recent *Acorn User* cover CDs, and other items are downloadable from links to their authors' Web sites. Matthew also describes a neat method by which you can simultaneously use the PC to dial up to the Internet, while avoiding the NetBIOS unauthorised access problem discussed in the story above.

In brief

Radio Ga Ga

Philip Hardy's *MP3Radio* client enables Acorn browsers to connect to Internet radio stations that offer MPEG Layer 3 audio streams. Examples of these can be found in the SHOUTcast Showcase at *http://www.shoutcast.com/*.

Take care when you listen to these as many are on the "cutting edge" of broadcasting presentation, acceptable language and decency. An addition to your MimeMap file may be necessary to handle .pls playlist files.

Philip's HTML Help file describes the simple installation for Fresco© and WebsterXL. To add MP3 Radio to your Acorn browsing experience tune in to: *http://www.kiwisoft.co.uk/*

Red Hot Ant

Among the rush of ISPs to offer free Internet phone calls, one stands out simply for this sentence on their FAQ page. "RedHotAnt will support all O/S from Windows through Mac, Amiga and Acorn." Well, whaddya know! RedHotAnt promises three levels of service at £10, £20 or £30 per year plus a one-off fee of £30.

For your 60 quid you'll get 24 hours per day/7 days per week, free 0808 access, unlimited e-mail addresses, mail forwarding and auto-responding, virus detection and filtering, unlimited Web space, domain name hosting, news access and so on.

The only snag seems to be that by the time you read this, the first 50,000 subscribers will have been signed up so speed might be an issue – and it's worth pointing out that you are automatically disconnected after a couple of minutes idle time.

I wonder how many Acorn users visited *http://www.redhotant.com*?

Contacting me

David Dade:
comms@acornuser.com







The right touch

I'm quite often asked by people new to the Acorn scene if there is a typing tutor program available for our machines. I'm pleased to be able to say that I've found one and not only that, it's a very good one too. *SESType* is a nicely finished touch-typing course program in which you must copy out a sequence of letters as accurately as you can. The program will then gradually introduce more and more letters until you are familiar with the entire keyboard.

There are 900 exercises in total, including sections to help you increase typing speed, give you hints as to which finger to use to type the next letter, special exercises to improve 'difficult' letters and even audio cues and a comprehensive statistical analysis window.

Version 2 has just been released which not only offers all the features listed above but also includes graphs to show your speed history and accuracy of each letter but also support for multiple users and an improved configuration screen.

What's even more impressive is that the whole application is public domain. I'm beginning to think that there actually is such a thing as a free lunch – or perhaps it's just the generosity of RISC OS programmers.

When you load *SESType* for the first time you are prompted to enter your name. This is so each user can have their own statistics and exercises. If you subsequently load the application again you can either continue with a previous user or enter another new name. Each person can thus progress at their own speed and continue where they left off.

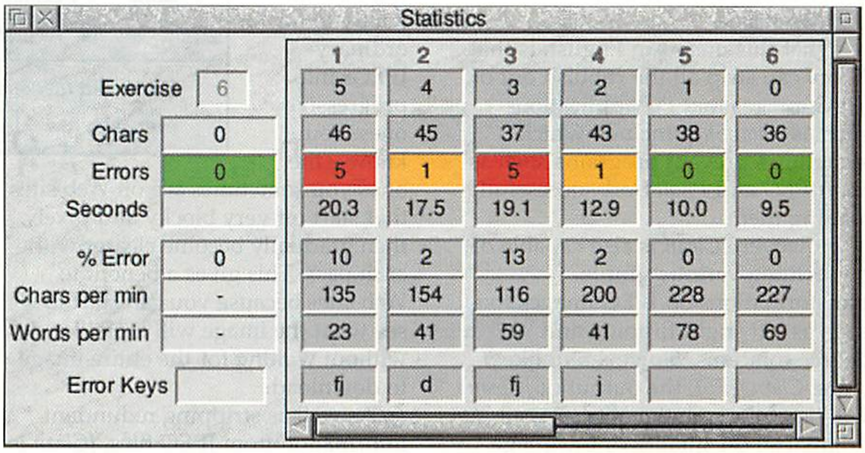


Figure II: I'm sure your results will be better

Figure I shows the main window where you perform the various exercises. As you can see, it's nicely presented and has lots of options without being daunting or difficult to pick up for the beginner.

A separate 'statistics' window (Figure II) gives you a real-time analysis of various tally's such as your current typing speed, in characters per minute as well as words per minute, and also the number of errors you make. A useful ability of the program is being able to work out which keys you are having difficulty with and display these so that you know where your weaknesses lie.

You can see that I have difficulty with the e,f,i,j,o and t keys – in fact nearly all of them – but I was only messing about, at least that's my story and I'm sticking to it

Once you've done a few sample exercises, you can build up a picture of where your weaknesses lie and *SESType* offers you an option to practice the keys that give you trouble.

If you're really having problems you can always turn on the hint option, which will graphically highlight where the next key is positioned on the keyboard.

Also included in the archive is a simple two-player game where you must balance a seesaw containing a bucket of water on each side. Each player is rapidly presented with various keys to press which, if successful, will tilt the seesaw in his or her favour. The person who presses the most keys correctly wins the game. This is a nice bonus application and is surprisingly addictive for such a simple game.

SESType is written by Peter Hillman and can be freely downloaded from his web site at **www.ee.ed.ac.uk/~pmh/ART/Type.html**

Read the help file for more instructions and if you bung Peter a fiver you might even encourage him to develop some more of his excellent RISC OS software.

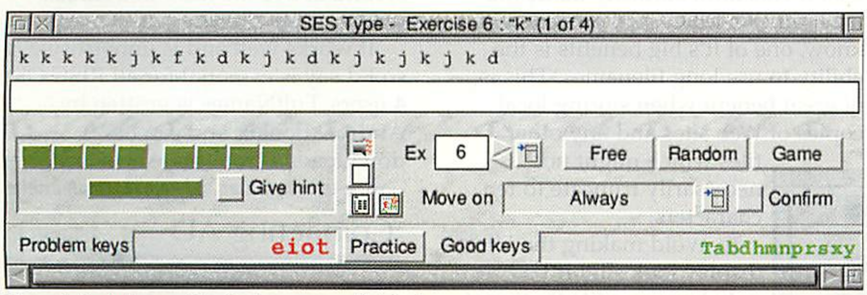


Figure I: A window you'll get to know very well indeed

JClean it

This is a desktop front end (or interface) for the Independent JPEG Group utilities *jpegtran* and *wrjpgcom*. It allows all operations available from these utilities to be performed by clicking and drag-and-drop rather than having to resort to the command line.

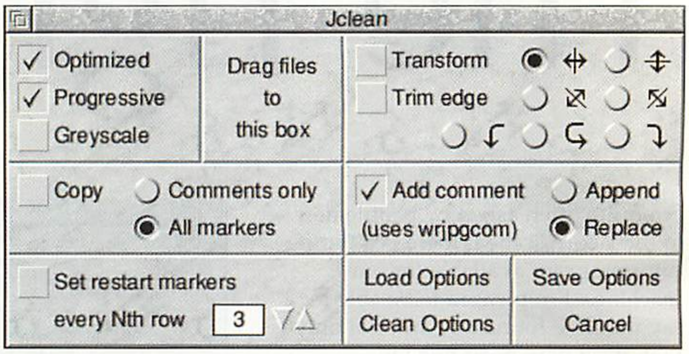
What this means in English is that *JClean* can strip all the rubbish out of JPEG images that PC applications such as *PhotoShop* include which sometimes prevent programs such as *SwiftJPEG* and *PhotoDesk* successfully loading them.

However, *JClean* is also capable of performing various simple transformations on JPEG images too, such as left/right flipping and 90 degree rotations. However, unlike using *ChangeFSI*, the output of *JClean* will be of the same quality as your original so the quality of the image won't be degraded as with many JPEG manipulation packages.

The most common use for *JClean* will be for tidying and 'optimising' JPEG images in order to make them slightly smaller and more efficient. This will probably be of most use to people who store large collections of images, either from a digital camera or for a Web site.

Another feature of *JClean* is the ability to turn ordinary JPEGs into progressive ones. You know – the ones you sometimes see on Web sites that start off very blocky and pixely, then gradually become clearer with each pass. This gives a benefit to Web sites because you can start to see what the image will look like without waiting for the entire image to download.

As well as stripping redundant information from JPEG files, *JClean* is capable of inserting it back in. If you drag a text file to *JClean*'s panel, you can insert a comment into the image, such as a copyright or date. Indeed you can either append your own text to what's already contained within the image or you can replace the existing text with your own, so



Drop a JPEG in the box – JClean does the rest!

JClean makes a nice all round application for tidying up JPEG files and because it doesn't reconvert the image you can rest assured that you won't be losing quality by re-processing the image.

All of *JClean*'s commands are contained within a single, straightforward window and full support is provided for Acorn's interactive help, so you can start using it straight away without having to read lots of lengthy instructions. *JClean* was written by J.David Barrow and can be downloaded from his Web site at:

www.dacha.freeuk.com/free/

Utilities update

CDLock will be useful to anyone who has to maintain computers in a school or public environment. It's a simple yet effective solution to people tampering with CDRom drives. Written by Martin Longley, it will lock the CDRom drive of any computer it is installed on.

Just copy the relevant application for your machine (there are slightly different versions supplied for different CDRom drives) into your !Boot sequence and from then on, the CDRom drive can only be opened after the correct password has been entered. That should stop crisp packets and pencil ends finding their way into the delicate electronics.

CDLock is available from:

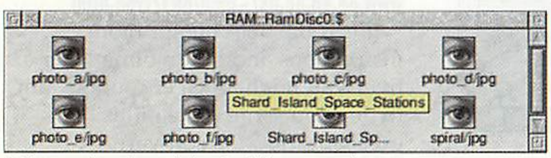
www.argonet.co.uk/users/lexicon1/

FullNames is a nifty little RISC OS 4 utility, which I hadn't realised how cool it was until curiosity made me try it out. As RISC OS 4 owners will know, one of it's big benefits is the ability to use long filenames. This is of great benefit when storing local copies of Web sites and any other files which might not necessarily truncate to ten characters.

To avoid making the Filer display look silly if you only have one file that's got a long name, RISC OS truncates the name displayed in filer windows to a sensible width and adds the text "..." on the end to signify that it's longer than what's being displayed. What *FullNames* does is to automatically display the full filename if the mouse pointer stays still for more than about a second above the file – in a similar way to RISC OS *Help*.

It works well and is unobtrusive, so I'd say is essential for all RISC OS 4 users. FullNames is written by Andrew Booker and can be downloaded from his Web site at:

www-users.york.ac.uk/~ajb121/fnames.htm



Fullnames in action, giving the full name, yeah

Contacting AU

Paul Vigay:
pdpage@acornuser.com

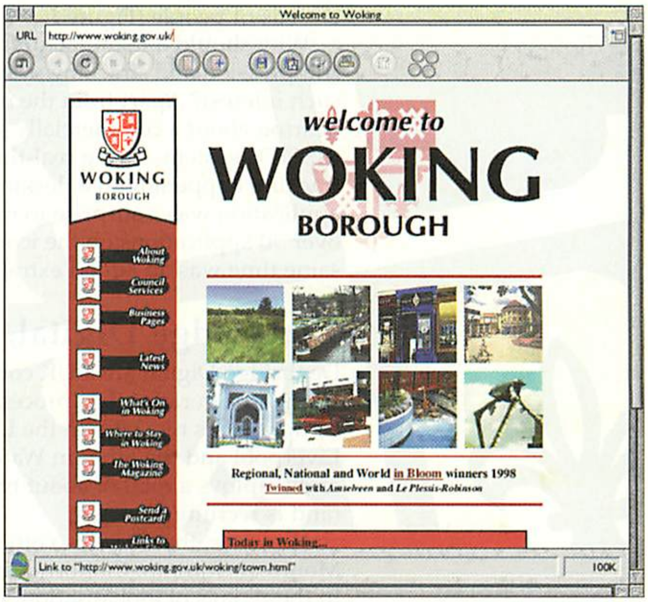
A bigger view

Following on from last month's investigation into the GIF, I thought I'd share a quick tip with you. Typically, GIFs are created with the maximum 256 colours in the palette – but the image format can be used with many less than this.

For a recent project of my own, the Woking Council Web site, I wanted to create a large watermark-style background to the pages – and I mean large in the sense of "lots of pixels". In the sense of byte-count (and therefore download time), the image had to be as small as possible. This little-used feature of the GIF amply allowed for both.

The watermark was to be an angled version of the Woking shield in a very pale grey, used both as part of the Council's logo and as a general motif around the borough. Although I wanted the shield to repeat very occasionally vertically, because it would be cropped to the left, it wasn't to repeat horizontally. And it was to be big, such that the shield would more than fill a single screenful of any page.

First, I created a canvas of 1200x1500 in *Photodesk*, and dropped the *ArtWorks* file of the shield onto it, placing the image carefully, and repeating the procedure such that whatever I'd cropped from the top appeared at the bottom, to allow for seamless tiling on really long pages. After converting the image to greyscale, I saved it out as a sprite (with a filesize of, give or take, 180k) and brought it into *ImageMaster* which allows you to reduce the bits-per-pixel level of an image (the number of colours) with considerable ease.



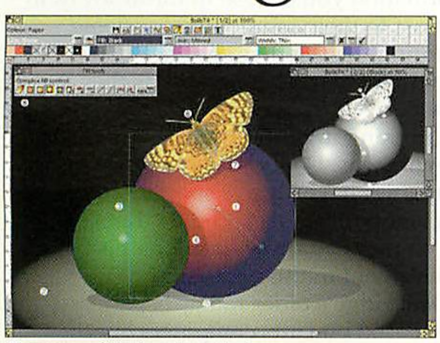
The contrast between the pale grey of the shield and the white of the background was such that I could drop the level down to two bits per pixel – effectively three colours in total – and still maintain a reasonably smooth edge to the image. Saving this out as a GIF resulted in an image that works perfectly in all browsers I've tried it on, and a file size of only 14k.

Netscape v3 on the PC seems to have trouble with images such as these once they've reached dimensions not far above the ones I'd used, causing a steady corruption of the window as you scroll down, but has no problems with this specific GIF.

The technique can also be used to reduce the size of animated GIFs dramatically. Where each frame in the animation uses the same, limited range of tones, *InterGIF*'s palette options dialogue box features the option to "find best *x* colours", which can be used to drop the palette down to fewer colours for the image as a whole.

Typically, changing this value by a few at a time won't result in any great improvement in filesize, but a reduction down to 64, or even 32 colours, can transform download times for an animation, at the expense of an amount of image quality – use with care!

Vantage *hotshots*



The power of Vantage is nearly here

With the imminent release of *Vantage* application, the Cerilica Web site now contains a number of useful action screenshots, including the recent addition of complex fills.

Vantage can fill an object according to an editable path – radial fills are not necessarily circular anymore – with transparencies and auto-tiled sprite textures applied. Cerilica have firm plans to launch the finished release at this year's Wakefield show, with a full review appearing in *Acorn User* imminently. The screenshots (with in-depth explanations of highlighted items), and further information about the project as it finally nears release, is available through:

http://www.cerilica.com/

Contacting AU

Andrew Green:
graphics@acornuser.com

Saili straig

Visitors to the RISC OS '99 show at Epsom last year had a rare opportunity: to see that most elusive of animals, a RISC-OS-based real-world application. The AAUG shared its stand with a company called Denbridge Digital, and Dr Colin Wright (Denbridge's Principal Researcher) demonstrated their system for eight hours at a stretch to crowds of people (Figure I).

Why should a manufacturer of radar-compression and -tracking systems attract such interest? Apart from the interest of hearing about a commercially successful RISC OS system, seeing real-time radar tracking happening in a desktop application was a surprise to many. Seeing over 50 applications on the iconbar at the same time was an added extra!

Denbridge Digital, who?

Denbridge Digital are a UK company that specialises in radar data processing. The company has two sites in the UK, one in Liverpool and the other in Waterlooville, and employs a total of about twelve people (and is recruiting).

However, there are also offices in Montreal, Toronto, California and Virginia. In these days of globalisation, however, Denbridge Digital is now mostly owned by a Canadian company, Denbridge Capital.

Denbridge have sold radar systems to many countries round the world, including Scandinavia, Europe, the Far East and the Americas, and have even sold some in the UK! Alert readers might have noticed a question in *Acorn User* a few months ago, about RISC OS being used for air-traffic control in Hong Kong. Unfortunately, this was not correct: Denbridge have sold radar-compression systems there, but not their RISC OS radar-display systems.

These compression systems don't



process the data (for example, performing "clutter control") but they take radar information from the scanning head then compress it and send it to a control room (which can be next door or many miles away), where it is analysed, displayed and recorded. Most of their work is done in marine radar – building systems that let harbour masters keep track of ships in their harbours and shipping lanes – but they also have systems for air-traffic radar.

The data on display at Epsom showed ship movements through the Storebaelt (the sea channel between Denmark and Sweden, connecting the Baltic with the North Sea), which is very narrow but has a huge number of ships travelling through it. In this sort of setting, it is essential that the controllers can get all the information out of their radar that they can. The type of radar screen most of us think of comes from old war movies – green screens with blips on – but modern radar systems can show much more than that. Denbridge's software can even allow you to see the ships' wakes! This is related to one of Denbridge's major commercial advantages: their radar compression system.

All radar compression systems are lossy – they throw away some information in order to transmit it quickly enough. It is obviously important here which information you choose to throw away. In contrast to their competitors' systems, Denbridge's system is specifically tailored to marine radar. The algorithms they use were derived from first principles to ensure that nothing important (in this context) is thrown away. Denbridge's ancestor companies have always specialised in telecommunications and data transmission, and so they can draw on a long history of achievement in this area.

Denbridge's older radar-display systems were based on Unix computers but they now use Risc PCs as well. These are

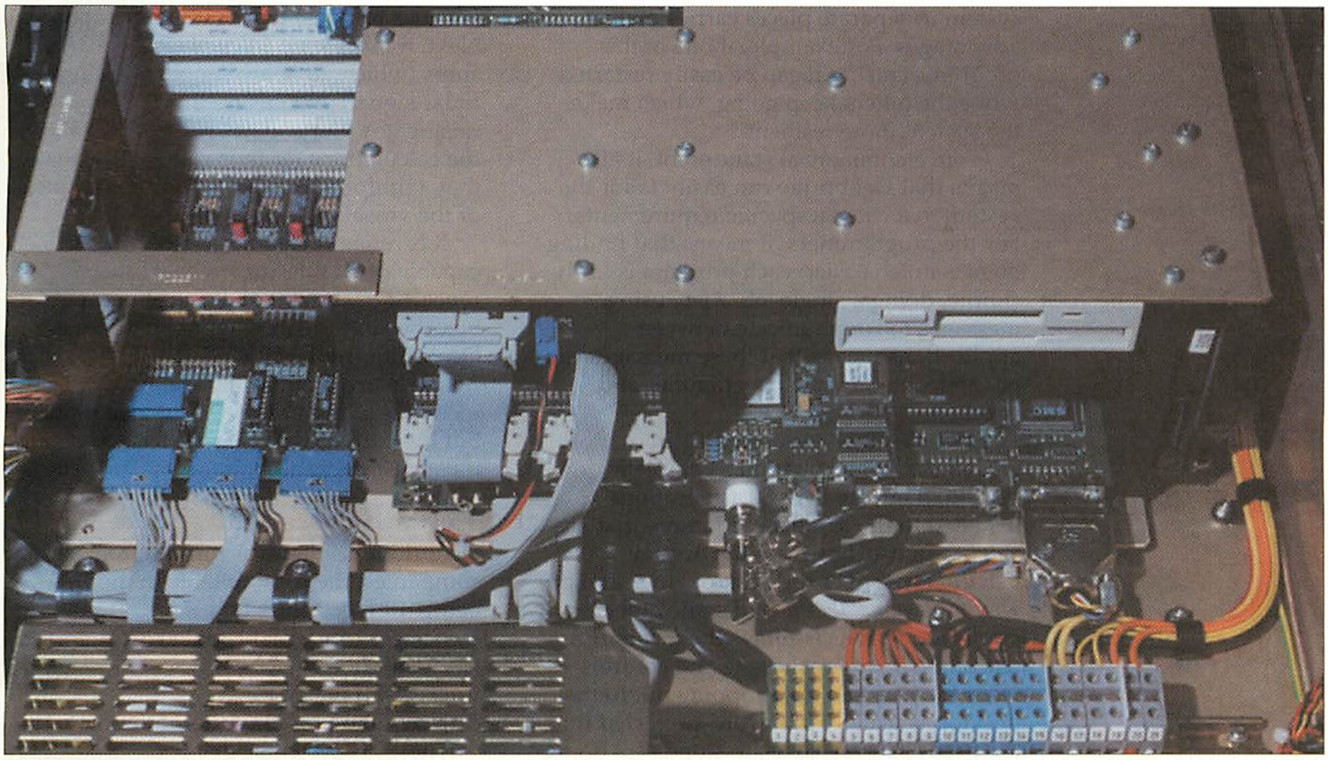


Figure II: The rack-mountable Risc PC that is Denbridge Digital's main radar-display product

ng a
ht course

John Pettigrew switches on his radar

repackaged in a rugged rack-mountable frame (Figure II) but all the parts are standard. Rack mounting is essential for this sort of system, as their clients want to plug the radar-tracking system into their existing control rooms, not have computers cluttering up the desks.

What do they do?

Marine radar systems have a simple purpose: to allow the controller to know where all vessels in the area are and to help ensure that no vessel collides with any other (or with anything else, whether that is a bridge, an oil rig or a lighthouse).

For this, Denbridge have produced a system that lets the controller zoom in and out (the screen can be anything from 512 nautical miles across to less than half a mile), pan across the area, and change the gain (with the gain high, you can even see ships' wakes; with the gain low, you see only the ships, with no noise). More importantly, the system also let you track individual ships by putting markers on them. You can then see at a glance where they are going and how fast. Figure III shows the on-screen display and some of the possible settings.

These markers also let the controller predict when two ships (or a ship and a bridge) will intercept one another, and where. Alternatively, the controller can ask the system what course and speed two ships should set so that they do intercept one another at a specified time and place. The computer can also produce alerts when certain events are about to happen (for example, when a ship is about to leave the shipping lane, or to collide with another), which helps reduce the possibility of human error.

How does it work?

The RISC OS applications designed by Denbridge to display radar data are modular. That is, rather than design one huge application that tries to do everything, they have many small programs (almost all of them are under 1000 lines of code) that communicate by passing messages.

This meant that they had to write their own application communication system, because RISC OS's 256-byte limit on WIMP messages was much too small. Denbridge's messaging system is, however, built on the RISC OS system. Designing the

system in separate pieces carries many advantages. For example, if one of the programs crashes it can be easily restarted while the others keep going, which makes the system more resilient.

From a commercial standpoint, it also means that Denbridge can easily tailor the system to a client's specific requirements. For the programmers, it means that finding bugs is much easier: each program is fairly simple, doing a single job. Also, using messages to communicate between applications means that these messages can be intercepted by the programmer and checked.

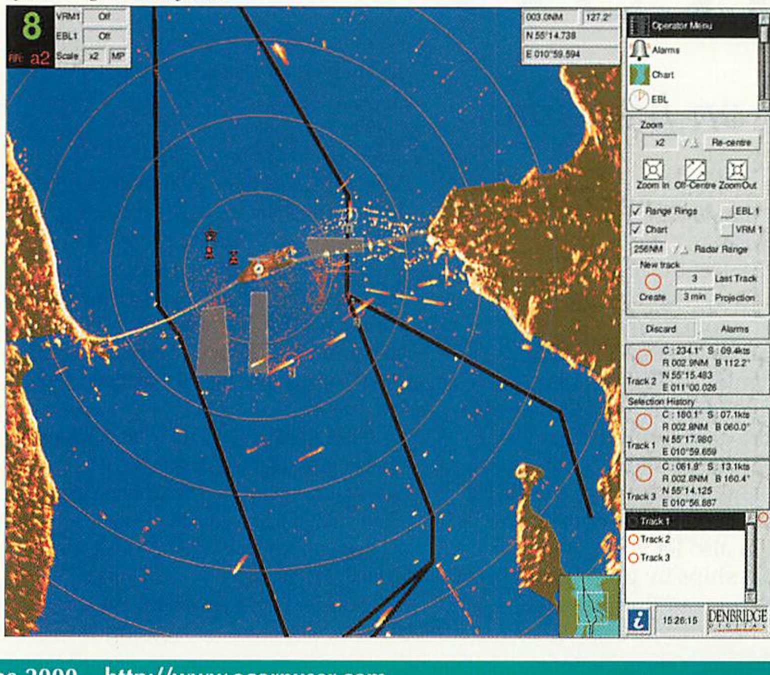
However, this does produce an amazingly full iconbar: in a complete system, there are over 50 applications installed to the iconbar, with more that are 'silent'. In use, however, the display usually takes over the desktop, in a similar way to *Sibelius*, *PCPro* and some other applications, which allows the maximum use of the screen real estate and controls what the user can do; dropping out to the desktop is usually password-protected in the production systems, to stop users doing it accidentally.

The system has to perform a huge amount of data processing. For each set of radar data, the computer has to convert the information into a picture for the screen, taking account of the zoom, pan and gain settings the user has chosen, while accurately interpolating any missing data at high zoom levels. At Epsom, I saw the display zoomed in to the maximum and there was no 'blockiness' to the display – these are smoothed out intelligently to give the best possible picture.

Once the radar image itself has been produced, the software has to add the outlines of the land and other features (such as bridges) that the user has chosen. Next, it must keep track of all the marked ships (which, to it, are simply blips in the radar signal) and ensure that they are not raising any alerts. Finally, it has to perform the calculations for those markers so that they faithfully record the course and speed of the vessel.

It is remarkable that the Risc PC is capable of all this, given the frequently repeated complaint about the limits of the bus speed of the motherboard. Of course, Denbridge are keenly interested in the Imago board from Millipede, with the huge increases in speed this would give them, but the current Risc PCs are fast enough for most customers already.

Figure III: The display produced by Denbridge's radar systems



Why RISC OS?

Denbridge Digital was formed from several companies, the most notable in the UK being dB Electronics and RMSL Traffic Systems. RMSL used Unix boxes and this has continued to some extent. However, dB used Acorn machines for their early radar displays and this continues up to date.

The Unix systems have become steadily more expensive to build and maintain, and the parts have become impossible to supply. The software has thus had to be continually rewritten for different Unix and hardware variants, and the licensing has always been expensive. However, Unix systems do have electronic charting systems available.

By contrast, the RISC OS systems are new, fully functional and have no licensing problems. They have found that their system is more responsive. However, some features are not yet available on the RISC OS version, including full electronic charts. Another major reason for using RISC OS is that it is feature-rich, stable, small, powerful and fast.

Denbridge's new RISC OS system contains 60,000 lines of code (BASIC, C and the traditional, lovingly hand-crafted, assembler). The Unix-based system contains 750,000 lines of C++. This much more compact code is an obvious example for a company that needs to keep development going.

Success!

Every commercially successful business has to do two things: make something that people need and supply it to them in a form that they will buy. Denbridge have found their niche in marine radar systems, drawing on their history of achievement in similar areas. Using RISC OS computers gives them many advantages by providing a stable, mature and easy to use system that they can build on and supply to customers. Long may they continue.

END

Award Winning RISC OS Software

Have you bought RISC OS 4?

All RISC OS 4 upgrades and machines come with either the special *!Writer* application or with version 4 of *!EasyWriter*. Contact us now to upgrade your copy to *EasiWriter Pro+* for just £80 and make the most of your machine.

Look at the added features you get – upgrade now!

The very best, actively developed, word processor on RISC OS has been updated again and this is your chance to buy at a very special price

	NORMAL PRICE	SPECIAL OFFER	TOTAL SAVING
TechWriter	£213.84	£189	£24.84
EasiWriter	£155.09	£139	£16.09
Student prices	Techwriter Pro+ Easiwriter Pro+	£108.68 £79.31	

TechWriter/EasiWriter Pro+ Special Features

- Java-enabled
- European languages
- Multi-lingual hyphenation
- Footnotes and endnotes
- Thumbnail and pamphlet printing
- Text flow over graphics
- Load and save Word files
- Load and save HTML
- Online help
- Mailmerging

TechWriter Pro+ Extra Features

- Inline equation editor
- Save equation as drawfile
- Convert equations to GIFs when saving as HTML

Got an old version?

Upgrade your copy of TechWriter or EasiWriter at these special offer prices and take advantage of the incredible new facilities of the Pro+ versions:

From version 6 .... *£22*
From version 5 .... *£40*
From version 4.10 .... *£55*
From version 4.08 .... *£70*
Earlier versions *£80*

Icon Technology Limited
Church House • Carlby • Stamford • Lincs • PE9 4NB
Phone and Fax 01778 590563
http://www.icontechnology.net
email: sales@IconTechnology.net

All prices include VAT and p&p


Wakefield
www.cybervillage.co.uk/acorn/wakefield
The Acorn RISC
Where everything is
20th/21st May
Opening time: Saturday 10:00 to 17:30
Sunday 10:15 to 16:00
[15mins earlier for advance ticket holders]
In advance
[available from mid Jan]
Adults £2.50
Under 16's £1.50
Under 5's FREE
Foundation members and OAP's £2.50
At the door
All tickets valid for use on both days
Adults £3.50
Under 16's £2.50
Under 5's FREE
Foundation members and OAP's £2.50
For advance tickets, please send a cheque or postal order made payable to "WACG Show" to
Wakefield 2000 | 95 Cumbrian Way | Wakefield | West Yorks. | WF2 8JT
show theatre | games arcade | riscstation village | cafeteria
Designed on a RiscPC using Cerilica Vantage | © Astute Graphics 1999

2000 OS Show

Thornes Park Athletics Stadium
Horbury Road
Wakefield

Wakefield Acorn Computer Group
Formed 1983

Brought to you by...

in place

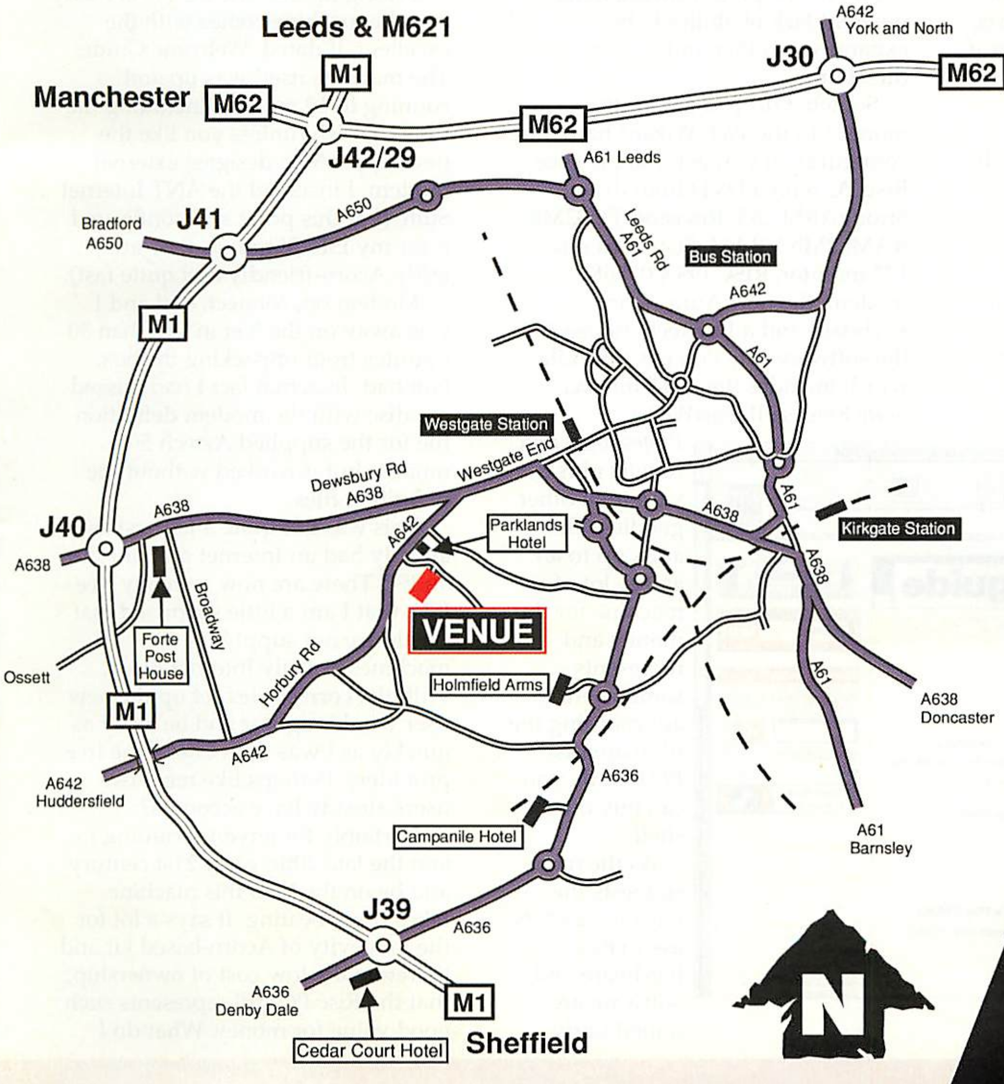
Sponsored by...

Cerilica
www.cerilica.com

CASTLE
www.castle.org.uk

ACORN USER
www.acornuser.com

RiscStation
www.riscstation.co.uk



One of the

Mike Tomkinson starts his in-depth analysis of the RISC OS machines

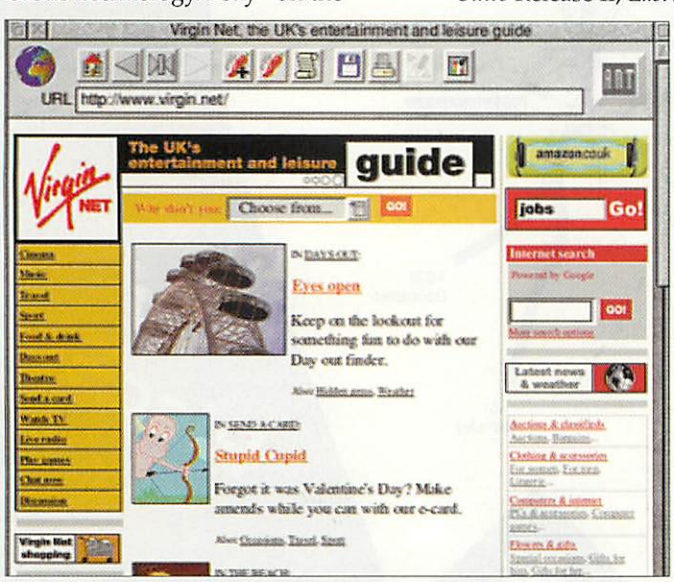
This is the first of three reviews of the new Acorn-based incarnations which are currently available and which have appeared since the demise of Acorn. These reviews are hands-on reviews and not based on press releases. The stipulation is that the machines supplied for review are exactly as the paying customer would receive them.

In coming months I will review machines from MicroDigital and RiscStation. These will not be comparative reviews – all three manufacturers are aiming at slightly different markets and we hope that all three will succeed in their efforts.

Comparisons would only be fair if we were comparing like with like. All three new machines ship with RISC OS 4 and while the new OS has been covered elsewhere it is difficult to separate the computer from its operating system so there may be passing reference to this in the reviews.

In this review I will be looking at what, on the surface, appears to be the "least new" of the new machines – the Risc PC233T Web Wizard from Castle Technology. I say "on the surface" because the actual box is the standard Acorn Risc PC. Having said that you have to see it again to realise how revolutionary this case actually was at the time of launch. The flip front, the easy access lid, riot shield plastic, tower or desktop configuration, additional slices, and so on. However, this is the box that Acorn were going to drop for the ill-fated Phoebe project owing to its inherent lack of ability to be expanded in other and newer directions.

So, what do you get for the money? In the Web Wizard hardware configuration you get a single slice Risc PC with a DVD Rom drive, StrongARM 233 (Revision T), 32Mb RAM, 2Mb VRAM, 8Gb hard disc, 17" monitor, RISC OS 4.0, 56K modem, the new Aura Acorn keyboard and a Logitech mouse. On the software side you get a bundle which includes the ANT *Internet Suite* Release II, *EasiWriter Professional* and *Resultz* plus a variety of other goodies. This adds up to an awful lot of machine for the money and represents somewhere approaching the ultimate Risc PC bundle you can buy off the shelf.



The Web Wizard is designed for Internet access

As the name suggests the machine and its associated hardware and software are aimed fairly and squarely at the Internet market. With that in mind my first task/test was to see how long it took to actually get on the Net from the machine arriving. I had somewhat of a head start in that I knew what I was doing but as none of it is too difficult, (apart from getting the monitor out of the box), I considered it a fair test.

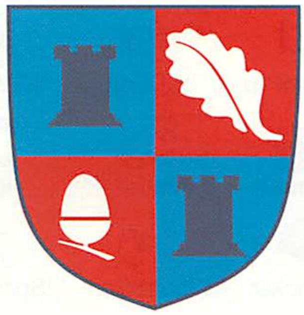
Setting up the Risc PC is very easy and the machine comes with the excellent, if dated, Welcome Guide. The machine itself was up and running in 10 minutes including the rather garish (unless you like the new Apple Mac designs) external modem. I installed the ANT Internet Suite II at this point and configured it for my ISP, (Virgin as they are fairly Acorn-friendly and quite fast).

Modem on, connect, dial and I was away on the Net in less than 30 minutes from unpacking the box. Not bad. In actual fact I had missed the disc with the modem definition file for the supplied Aztech 56K modem but it worked without the definition files.

This was not quite a fair test as I already had an Internet account via an ISP. There are now so many free ISPs that I am a little surprised that Castle are not supplying the machines as truly Internet ready. With the correct files set up the new user would register and be away as quickly as I was with one of the free providers. Perhaps like me most users already have accounts?

Certainly for anyone wanting to join the late 20th/early 21st century and be on the Web this machine takes some beating. It says a lot for the longevity of Acorn-based kit and, therefore the low cost of ownership, that the Risc PC still represents such good value for money. What do I

Best





The Aura keyboard – nice wrist-rest

mean by cost of ownership? You could buy a very high end Pentium PC for the cost of the Web Wizard. Let's face it, many people do. But in the PC world where machines go from "State of the Art" to "State of the Ark" in about six months, you would need to spend more money upgrading the hardware, the operating system and the software.

Hence the initial lower cost of purchase would quickly translate into a high cost of ownership. Too many schools are discovering this lesson with their short-sighted Governors helping them into a situation where ICT is practically a capital expenditure every year.

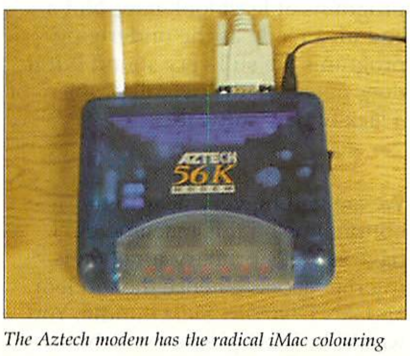
To give another example: I installed my copy of *Impression Publisher* onto the new machine – Version 4.13 (10th December 1996). It worked perfectly and I produced this review on it. No need to have an expensive upgrade – perfect backwards compatibility. Try saying that about any PC you know. Among the bundled software is an *Ovation Pro* demo and I would personally recommend that anyone buying the machine considers upgrading to this DTP package as it is still being developed and supported by David Pilling and between them *Ovation Pro* and *Easiwriter* make *Impression* seem very dated.

The 17" monitor which came with the review machine was a crystal-clear Ilyama S7000JTI. Do not be tempted to go for a smaller monitor – size matters.

The StrongARM processor was always fast and on this machine is even faster. Programs load almost instantly – you rarely see the egg-timer. That being said the lack of a native Floating Point Accelerator is still a problem on all Acorns except the A7000+. It is one of the reasons I have stuck with my A7000+ despite its even worse problems with extensibility. I did not give the machine any extensive rendering or number work to do and that tends to be where the lack of FPA shows itself most.

The Aura keyboard is a delight to use and has a thoroughly modern look to it. If you install the new *AcornKey* driver supplied with the keyboard it enables a number of hot keys alongside the function keys. Among these is a WWW key which launches *Browse* or *Fresco* and a DOS key which launches the PC card if fitted or a Task Window if not. An excellent keyboard with a range of new features – it's almost worth buying the bundle just for the keyboard.

The Web Wizard does not come with a PC card although even this could not help make use of the installed DVD drive. On the Web Wizard as supplied this is simply used as a standard CD reader. The unit is not a tray loader but one where the CD is inserted into a slot and then the CD appears to be swallowed.



The Aztech modem has the radical iMac colouring

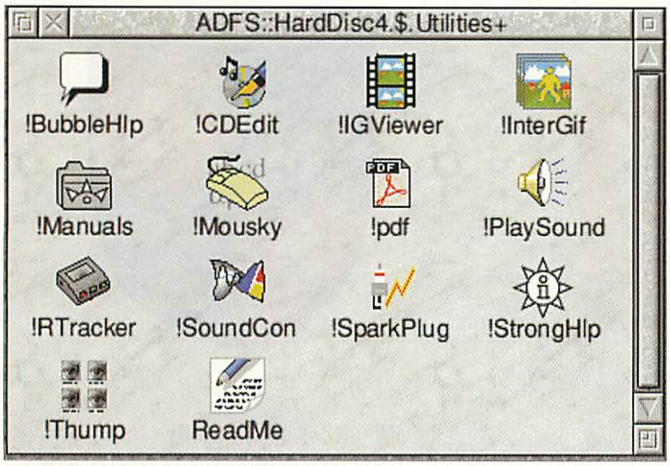
Nice and neat but once again the lack of native RISC OS DVD support places users of the machine at a disadvantage compared to PC users. Naturally this would be the same case on any Acorn machine with a DVD drive fitted and the question has to be asked why bother fitting a DVD drive at unless it is cheaper than an equivalent CD ROM unit?

So that's just about it for the hardware – all very functional, tried and tested. Rock-solid and bulletproof it puts any PC box to shame by its sheer robustness and innovative design. It is easy to get into and therefore upgrade, easily expandable by the addition of an extra slice and much sought after as the thriving secondhand market shows. Imagine a secondhand market in PCs except perhaps as door stops.

And the software?

I said this was not going to be a RISC OS 4 review but after all it is the operating system. The version fitted on the Web Wizard I reviewed was the 4.02 version. In operation it was very solid and I never had a crash. Given that my PC which sat just behind me during the review period crashes more times per day than the average Parisian taxi driver on a Bank Holiday weekend that's saying something.

I get the impression from the newsgroups that some people have suffered a little with RISC OS 4 but mine seemed fine for the purposes for which I was using it. As I have mentioned the machine comes with the old printed Risc PC Welcome Guide but it also comes with a printed Addendum covering RISC



Web Wizard utilities – some unusual suspects

OS 4 and how it differs from previous versions. This is well worth a read as RISC OS 4 is just different enough to give an experienced RISC OS 3.7 user trouble.

On the hard drive is the software manual for RISC OS 3.7; the Internet User Guide; the OmniClient User Guide and the TimeCode User Guide. Plenty of good night time reading to be sure.

Much of the rest of the software was standard stuff that any user of Acorns would recognise on any machine produced in the last few years. Some, like the Images slideshow, are quite effective in showing off the power and versatility of the machine.

Others should be dropped like a brick as they do nothing for RISC OS or the Risc PC, whatever mode you are in and whatever monitor you use. My personal hate is the Video sequences which do nothing for the machine and look decidedly dated. The raft, lion fish, birds and shuttle launch should be binned unless I am missing the point somewhere along the way.

At this point, while writing the review, my 12 year old son managed to get on the Web Wizard. His verdict was a typically understated: "quite good Dad". Praise indeed. While discussing the machine he did make a comment which rather sums up the problems of anyone bringing a "new" Acorn or RISC OS based machine to the market. He said that he did not realise that Acorn were still producing machines.

When I told him they were not but others were he was pleasantly surprised. It's the old problem – excellent computers, with world beating innovation but marketing is the key. It was good to see that Castle and others made full use of such shows as BETT this year. Let's face it if you can sell Apples based on an innovative case design you should be able to sell RISC OS if it were packaged in shoe box. Well, not quite but you get the point.

The bundled software includes the *Resultz* spreadsheet from Colton Software. This comes with a full software-based manual and it was good to see it included. Personally, I would have preferred *PipeDream 4.5* as that would have given a degree of integration rather than a separate spreadsheet, word processor. This is a personal thing as I have always liked *Pipedream* where I imagine plenty of others must dislike it as quirky.

It is in the area of software to supply on a new machine that all three new manufacturers will have most difficulty. There is not enough that is new. I may be able to put a six-year-old copy of Impression on the computer but, in truth, it looks like a six-year-old program. Looks are everything to a new user. They expect to see what is available on other platforms.

Naturally no software house is going to produce for a platform which they perceive to be dying and it is to the credit of Castle and others that the hardware manufacturers have broken the vicious spiral of decline. Obviously I should also mention RISCOS Ltd for bring RISC OS 4 to the market at this point.

I know at least one of the new hardware producers has it in mind to re-vamp the look of existing programs by the addition of new "skins". This would make the programs at least look new. Not a bad idea really as the underlying programs are still very sound but it does not solve the overall problem of a lack of new software.

The bottom line

We are getting very near to the bottom line on this machine. As I have said it's primary function is Internet access – hence the modem and ANT *Internet Suite* bundle. You would be hard-pressed to achieve this aim with any other machine on or coming to the market if you required a standalone machine.

On top of that you get the most tested and tried of all solutions – a Risc PC with all that it means. This includes that ability to run PC programs natively with the addition of PC card. Naturally it can also be networked with the addition of a network card but I would be tempted to look elsewhere if this was what I wanted the machine for.

The StrongARM processor, large hard drive, excellent monitor and keyboard, robust OS and good modem add up to an excellent package representing good value and a low cost of ownership as already mentioned. This is worth re-iterating: the machine will outlast any PC on the market and cost you less in upgrades. Schools take very careful note of this point.

The bundled software is something of a "curate's egg" in that it is good in parts. Perhaps, apart from the ANT Suite, that is the problem – it is not integrated enough for my taste. So be it. That is part of the very short downside to RISC OS-based ownership.

The major downside has to be the cost of purchase. Put simply this machine is very expensive at £1149 plus VAT or £1350 in real money. Given the inclusion of questionable items like a DVD drive would it not be possible to reduce the cost to the sub-£1000 mark?

I have a personal criteria when reviewing anything, software or hardware. I ask myself the question: when it comes time for the courier to come and pick up the computer am I glad to see the back of it?

The answer in the case of the Risc PC233T Web Wizard was quite simple. The courier would have a harder time getting it out of my front door than a bailiff in Bootle. That's how unhappy I would be to see it go.

END

Product details

Product:	Risc PC 233T "Web Wizard"
Price:	£1099 + VAT, plus delivery (£11 + VAT)
Supplier:	Castle Technology, Ore Trading Estate, Woodbridge Road, Framlingham, Suffolk IP13 9LL
Tel:	01728 723200
Fax:	0800 783 9638 (freefax)
E-mail:	acorn@castle.org.uk
Web:	www.castle.org.uk

Expan
Ova

John Pettigrew orders from the menu

A large part of *OvationPro*'s flexibility lies in its scripting language (which I'll call OPSL after this, for *OvPro* Script Language). This can be used to create macros that carry out simple functions, to change the menu structure of the main program and to extend or modify *OvPro*'s functioning.

In the first of these articles, I introduced applets and showed their basic structure. In the second, I showed you how applets can use their own windows and also detect and modify the attributes of the text. In this final article in the series, I'll introduce some of the commands OPSL provides for handling external files and for creating and modifying menus.

Inserter

The demonstration applet this month is called *Inserter*. There is an abbreviated listing as with last month's with all of the comments and some of the more boring functions removed to save space. The applet itself is, of course, on the *Acorn User* Web site and will also be on the next cover CD. This is copiously commented so it should be easy to work out what's doing what.

This applet provides a new menu option on the Misc->Insert menu (Figure I). This new option opens a submenu with various text entries. Clicking on an entry will type the text at the cursor. At the bottom of the menu is a writable entry that allows you to add entries to the menu. The Inserter menu can also be opened from a button on the button bar.

What do we need?

Figure II shows the directory structure of the Inserter applet. This is the same as the *Pointless* applet from the first article except for two extra files in the *AResources* directory. The *buttons22* file serves the same function as last time – it stores a sprite that is used for the button for this applet. The *Entries* file contains the text that is used to create the menu.

In addition to the ordinary setting up that all applets have to do, Inserter has to read its *Entries* file when it starts up, create a menu from that information and attach the menu to the correct standard menu (and also to a button, for ease of use). When the user selects an entry on the menu, the applet must either type the text at the cursor or, if it's the writable entry, add the text to the bottom of the menu for future insertion. Finally, because the menu can change during use, the applet must save the menu data back to its file when *OvPro* quits.

Starting up

The main function (lines 67–82) should be familiar: setting up a macro (line 81) and the associated online help (lines 70, 71), initialising and registering event handlers. However, there are a few differences. The first is that, when we create a menu entry, we aren't doing so in the Applets menu but in the Misc->Insert menu.

To do this, we use the same command as last time (*addentry_menu()*) but, rather than passing the variable **script_handle**, we pass **insert_handle**. These are both *OvPro* variables that it uses to refer to its various menus. Unfortunately, there doesn't seem to be a list of what all these variables are but the menu handles seem generally to be named after the menu title.

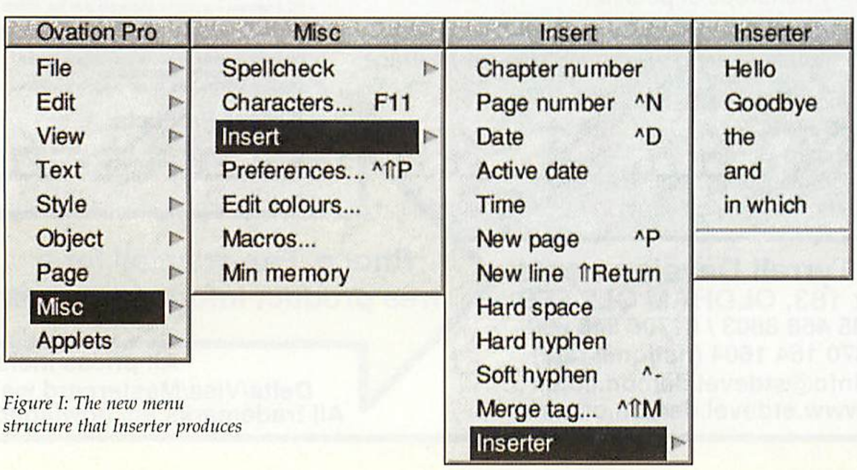


Figure I: The new menu structure that Inserter produces

Last time, I explained what the parameters to this function are. Thus, this time, I'm creating an entry that does nothing when clicked on, is plain (no flags are set), has a submenu and has no keyboard shortcut, and has the text in the INSERTER_00 token as its text.

Lines 74-79 are concerned with creating the menu. The main function is run once by *OvPro*, when it first starts up. Thus, we need to set up a variable so that the applet can find the Entries file. Lines 74–76 translate the file alias set up by *OvPro* (**<OvationPro$AppletsDir>**) into a full canonical path (something like *adfs::4.$.Apps.OvPro.!OvPro.Applets*), then adds on the fixed portion relative to the Applets directory. Again, the C-like syntax of OPSL allows this to be done simply using the '+=' operator. This adds whatever comes after the sign to whatever came before it.

Next, we need to create the menu using the *create_menu()* command, which returns an integer that you can use to refer to this menu afterwards. We then call a separate function to read the *Entries* file and to convert the entries into a menu structure. Finally, we need to register

ding
tionPro

an event, because we need to save the menu structure again when *OvPro* is quit.

Reading a file

During startup, we need to create the menu structure. As explained above, a simple OPSL command is all that is needed to create the menu itself, but this would be very bare (it would have no entries at all!). To populate the menu with text to insert, we need to read the Entries file, which contains text, with one entry per line.

The *inserter_readfile()* function (lines 23–48) first needs to open the file, using the *fileopen()* command. The first variable passed to this command is the full file path, which we set up in the main function. The second variable controls what will happen to the file we've just opened: 'r' means that the file is opened for reading but other possible values include 'w', for writing, which is used below; the *OvPro* manual contains a list of the possible values.

If the file opened successfully (line 29; *fileopen()* returns an integer handle for the file, or zero if it fails), we can read information from the file a line at a time using the *filereads()* command. This command reads the contents of a file as a string. Each time it is called, it reads the next section of the file, stopping each time it finds a newline character (ASCII 10). This is usually the easiest way to read text from a file, although there are also commands for reading a character at a time.

Using the *while* command to continue reading lines from the file, we read a line and then add the text to the menu using the *addentry_menu()* command, just as in the main function. All entries in this menu are set to call the same function when they are selected, the *inserter_insert()* function. The text read from the file that we use to create the menu entries includes the trailing newline character. Thus, we have to strip this off, which is done with the *mids()* and *slen()* commands.

Each time we add a line to the menu, we increment the variable that's recording the size of the menu (**inserter_menusize**). Once all the entries have been read and added to the menu, we need to fiddle slightly to get it right. This is because I wanted to add a dotted line at the bottom of the menu with a writable entry below it. Unfortunately, there's no way of altering entries in a menu so I needed to remove the last entry in the menu using the *rementry_menu()* command.

Once this has been done, I recreate the entry (reusing the last value read from the file, stripping off the trailing newline again) and call a function that sets the flags so that there is a dotted line under the entry. Next, I create a new, blank entry whose flags are set to make it writable. Finally, I need to increment the *inserter_menusize* variable again because I've added a new entry to the menu.

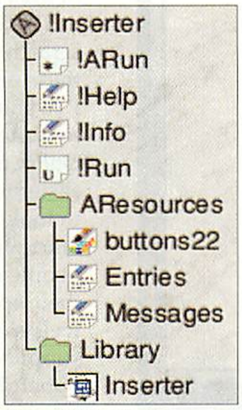


Figure II: The directory structure of the Inserter applet

If the file did not open correctly, lines 43–45 produce an error box. This will be opened as *OvPro* starts up as this function is only called then and produces a slightly more informative error than 'Type 5' if this problem arises. The text of the error message is stored in the Messages file in token INSERTER_02.

The last action of this function is to close the file that it opened. This is important as leaving files open can cause all sorts of problems for other programs, and would make it difficult for us to open it later to write the final menu structure.

Closing down

Logically, it makes sense now to look at what happens when *OvPro* closes down (*inserter_close()*; lines 50–65). Essentially, this is the reverse of the

```
1 : int inserter_menu;
2 : int inserter_menusize;
3 : string inserter_filepath;
4 :
5 : int inserter_insert(int entry, int subcode)
6 : {
7 :   string s,r;
8 :   if(entry<inserter_menusize-1) type(string_menu(insert
er_menu, entry));
9 :   else
10 :   {
11 :     r = string_menu(inserter_menu,inserter_menusize-1);
12 :     rementry_menu(inserter_menu,inserter_menusize-1);
13 :     s = string_menu(inserter_menu,inserter_menusize-2);
14 :     rementry_menu(inserter_menu,inserter_menusize-2);
15 :     addentry_menu(inserter_menu,"inserter_insert","",""
,"",s);
16 :     addentry_menu(inserter_menu,"inserter_insert","inse
rter_dotted","","",r);
17 :     addentry_menu(inserter_menu,"inserter_insert","inse
rter_writeable","","","");
18 :     inserter_menusize += 1;
19 :   }
20 :   return(subcode);
21 : }
22 :
23 : void inserter_readfile()
24 : {
25 :   int handle;
26 :   string s;
27 :   inserter_menusize = 0;
28 :   handle = fileopen(inserter_filepath,"r");
29 :   if(handle)
30 :   {
31 :     while(!filereads(s,handle))
32 :     {
33 :       addentry_menu(inserter_menu,"inserter_insert","",
"","",mids(s,0,slen(s)-1));
34 :       inserter_menusize += 1;
35 :     }
36 :     rementry_menu(inserter_menu, (inserter_menusize-1))
;
37 :     addentry_menu(inserter_menu,"inserter_insert","inse
rter_dotted","","",mids(s,0,slen(s)-1));
38 :     addentry_menu(inserter_menu,"inserter_insert","inse
rter_writeable","","","");
39 :     inserter_menusize += 1;
40 :   }
41 :   else
42 :   {
43 :     s = "{INSERTER_02}";
44 :     translate(s);
45 :     errorbox(s);
46 :   }
47 :   handle = fileclose(handle);
48 : }
49 :
50 : void inserter_close(int user)
51 : {
52 :   int i = 0;
53 :   int handle;
54 :   string s = "";
55 :   while(i < inserter_menusize-1) s += string_menu(inser
ter_menu, i++) + chars(10);
56 :   handle = fileopen(inserter_filepath, "w");
57 :   if(handle) i = filewrites(s, handle);
58 :   else
59 :   {
60 :     s = "{INSERTER_02}";
61 :     translate(s);
62 :     errorbox(s);
63 :   }
64 :   handle = fileclose(handle);
65 : }
66 :
67 : void main(void)
68 : {
69 :   int temp;
70 :   string help = "{INSERTER_01}";
71 :   translate(help);
72 :   script_menu_initialise();
73 :   addentry_menu(insert_handle,"","","inserter_submenu",
"","{INSERTER_00}");
74 :   inserter_filepath = "OvationPro$AppletsDir";
75 :   temp = getenvs(inserter_filepath);
76 :   inserter_filepath += ".!Inserter.AResources.Entries";
77 :   inserter_readfile();
78 :   inserter_menu = create_menu("Inserter");
79 :   inserter_readfile();
80 :   addeventhandler(0x004, 0, "inserter_close");
81 :   if(isdefmacro("inserter") == -1) defmacro2(12,"insert
er","{inserter_openmenu()}","inserter",help);
82 : }
```

The reduced listing of the Inserter applet's Library file

Key: functions, brown; numbers, red; variables, green; strings, blue; commands, purple.

The string command is coloured green by Zap rather than purple like int because it's not a C declaration – the C mode for Zap works well for OPSL except for occasional glitches like this.

inserter_fileread() function: read the contents of the menu then write that information to a file. The *fileopen()* command is used to open the file, this time using the 'w' parameter to tell *OvPro* that we're going to be writing to it.

Line 55 reads all the entries from the menu (while **i** is less than the number of entries) and adds them onto the end of the string **s** (which is initially blank). Each time text is added, we also add an ASCII 10 (newline) to the end to separate the entries. This process depends on the *string_menu()* command, which returns the text stored in a menu entry, which is indicated by passing the menu handle and entry number to the function.

This makes use again of C syntax: to make this a loop, it is necessary to increment the variable **i** each time the loop is executed. In BASIC, you'd have to insert an extra line to do this but C lets you shortcut it. In the *string_menu()* command, we pass the menu handle but the second parameter is 'i++'. This means 'use variable **i** and then add 1 to it'. It is also possible to use '++i', which means 'add 1 to i and then use it', and there are also equivalent subtraction operators.

Once we've built a string that contains all the menu entries, we need to write this to the file. Because we only need to write a single string, this is rather easier than the reading. If the file has opened successfully, we use *filewrites()* to write our string to the file pointed to by handle. If not (for example *OvPro* is installed on a read-only disc), we raise an error in the same way as before. Lastly, we close our file.

Menu editing in OPSL

OPSL makes creating menus very easy but it isn't so easy to alter existing menus – you can delete entries but not change them. For example, you can't change the text on an entry easily, nor change the function that is called for that entry when the menu is opened. The latter is especially tricky. It means that, if you want an entry to change state depending on the situation – such as ticking/unticking, adding or removing underlines and so on – you have to write detailed functions to control it.

In this applet, I took a different tack, deleting and recreating entries depending on the situation. However, if you wanted to insert entries in the middle of a menu (for example, to keep the entries on the Inserter menu in alphabetical order) you could use the *insertentry_menu()* command. However, this seems to have a slight problem, in that all the entries lower down the menu will lose their flags (the menu loses all the underlines and so on). Hopefully these problems will be addressed in future.

Making it work

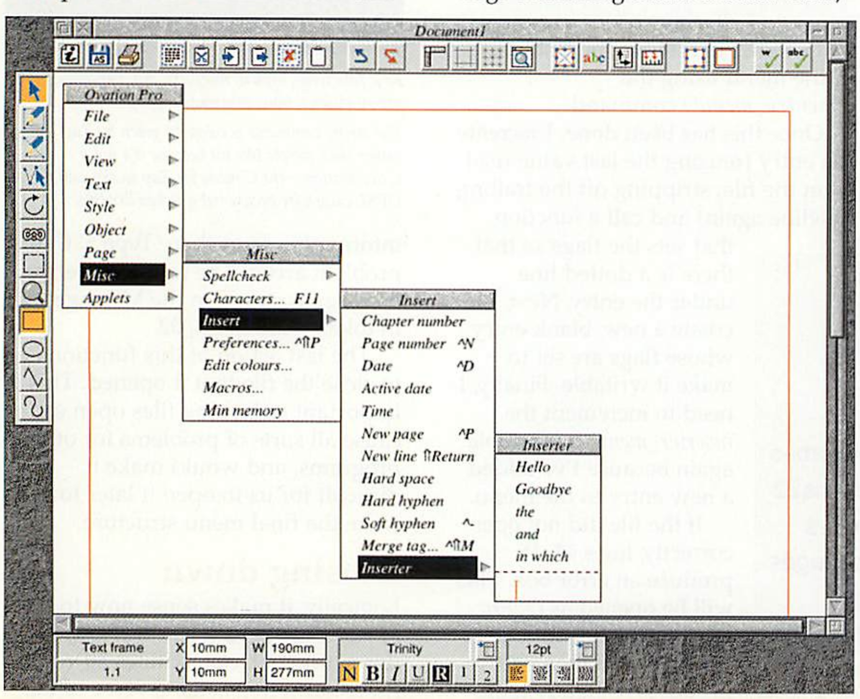
So far, we've got an applet that reads a file to create a menu, then reads a menu to write a file. However, it still needs to do something between starting up and quitting. The function that does the main work of the applet is *inserter_insert()* (lines 5–21) which is called whenever an entry in Inserter's menu is selected.

If the entry is not the last one (it's a piece of text that the user wants to insert) the function simply reads the menu entry using *string_menu()* as above and writes this value at the cursor using *type()*. If not (the user has selected the writable entry) we need to read the value and add it to the bottom of the menu.

However, the bottom entry is the one with the dotted line under it and there is no easy way to change the flags of existing menu entries. Thus, we need to delete the last two entries in the menu (the writable entry and the underlined one), remembering their contents. Then, we need to create two new entries in the same order, with the second one underlined. Finally, we need to create a new writable entry.

Lines 11–18 show how this is done, using two string variables to store the values read from the menu with *string_menu()*, removing the two entries and adding on three new ones. We also need to increment **inserter_menusize**, because we've added an extra menu entry. This is so that the applet will know, in the *inserter_close()* function, how many entries there are to read from the menu.

The *inserter_insert()* function has to return an integer value (usually subcode) because that is what *OvPro* expects and so this is how the function is completed.



Finishing up

This simple applet should hopefully show you how easy it is to create and change menus in *OvPro*. The ability to read and write text and binary-data files from OPSL scripts and applets also opens huge areas of potential for you to use, whether that's external data, as in this case, or in choices files (as the newer versions of *StylePal* have used).

I've obviously only been able to scratch the surface of the possible in these articles. However, I hope that I've shown that it's not terribly hard to write an applet and it can make *OvPro* even more powerful and easier to use. The best way to learn is to look inside some existing applets. Start with the shorter ones; some people do put plenty of comments in their applets but most aren't terribly well commented. The two I've supplied with these articles will hopefully help. There are also some articles on the subject on the *OvPro* Web site.

END

Linux User • Linux User • Linux User • Linux User • Linux User



Linux User

• Linux News • Corel Linux 1.0 Review

tau PRESS

9 771470 954001 06>

ISSUE 3 JUNE 2000

Open Mon-Sat 10-18.00 hrs (All prices INCLUDE VAT) Carriage not included. Tel: 0845 458 0778 (Local Rate)

RISC OS Computer Systems

- Please ring regarding availability (Carriage £15)

Computer Model with	15" Monitor	17" Monitor	No Monitor
Acorn Sprinter NC 16MB, 10BaseT with Mse/Keybd	£485	£625	£350
A7000+ Classic 8Mb, 1Gb HD	£803	£663	£528
A7000+ Classic CD 8Mb, 1Gb HD, 24xCD	£721	£866	£586
A7000+ Odyssey CD 16Mb, 4Gb HD, 40xCD	£780	£920	£645
A7000+ Odyssey Secondary 16Mb, 4Gb HD, 40xCD	£839	£979	£704
A7000+ Odyssey Surf 24Mb, 1Gb HD, DVD, 56k, ANT	£956	£1096	£821
Riscstation NetWORX 8Mb, No HD, 10BaseT	£604	£744	£469
Riscstation R7500 Lite 16Mb, 4GbHD, 48CD, 10BaseT	£721	£866	£586
Riscstation R7500 Lite+ 64Mb, 8GbHD, 48CD, 10BaseT	£815	£960	£680
Risc PC SA233T 8Mb, 2Gb HD, RO3.70	£1015	£1155	£880
Risc PC SA233T 18Mb, 4Gb HD, 40xCD	£1167	£1307	£1032
Risc PC J233T 34Mb, 8Gb HD, DVDCD	£1227	£1367	£1092
Risc PC WebWizard 34Mb, 8Gb HD+DVD	£1426	£1566	£1291

- Web Wizard includes ANT Internet Suite, JAVA, External 56k modem,
- Easiwriter Professional with MS Word 6/7 compatibility, Resultz.

We only use quality monitors which are Samsung SM550b for 15" and Samsung SM-750p for 17".

D-Link ISDN Hub/Router £220c

Connect up to 6 computers to the Internet with just ONE single ISDN dial-up[1] internet account!

This amazingly easy to use unit is suitable for RISC OS, PC, Mac & Unix computers and compatible with BT ISDN/HomeHighway services. It provides;

- 128kbps Multilink PPP ISDN with compression & PAP/CHAP security.
- Connection to TWO ISDN sites simultaneously.
- A SIX port 10BaseT Hub for networking to each computer[2].
- TWO analogue telephone ports for standard telephones, faxes & modems.
- DHCP Server for automatically configuring computers for the network.
- Built-In Telnet server for configuration & diagnostics[1].
- Flash upgradeable for user-installable future firmware upgrades.

Ring now for further information.

[1] - ISDN line and ISP account not included. [2] - Each connected computer must be equipped with a 10BaseT network card. NOTE - PSU, Network cabling for ONE computer and ISDN Cabling is included with the unit.

Tektronix®

Colour Laser Printers (Carr £15)

Phaser 740N A4 600 dpi Colour £1700
- 1200dpi Mono, 5ppm Colour/16ppm Mono, 32Mb RAM,
- 10BaseT, Parallel, Lev3PS, PCL5, 136 Fonts. 1yr OSM.

Phaser 740P A4 1200dpi Colour £2500
- 1200dpi, 16ppm Mono, 5/2ppm 600/1200dpi, 32Mb RAM,
- 10BaseT, Parallel, Lev3PS, PCL5, 136 Fonts. 1yr OSM.

NEW Colour Solid Ink Printers

Phaser 850N A4 800dpi Colour £2525
- up to 14ppm, 32Mb RAM, 10/100BaseT, Parallel,
- Level 3 PS, PCL5 (colour), 136 Fonts. 1year OSM.

Tektronix Consumables	
740L Colour Upgrade	£Call
740 Std Black Toner	£71
740 Lrg Black Toner	£90
740 Std CMY Toner	£147
740 Lrg CMY Toner	£210
740 Fuser	£182
740 Fuser Roll	£58
740 Imaging Kit	£175
840 3 Black ColorStix	Free
840 5 - CMY Stix	£146

The price of colour consumables are PER colour.
Toner Yield;
Std 6k Mono, 5k Colour
Lrg 12k Mono, 10kCol

CD-RW Drives



Yamaha CRW6416

Recordable & Re-Writeable Internal SCSI CD-ROM drive complete with CDR & CDRW Disc and PC software.
Supports multi-session, MMC, Audio Modes 1 & 2, Write-on-the-Fly.
Add £60 for External.

£175c Inc

!CDBlaze (Software Only)	£80a
TraxD 650Mb CD-R disc	£1.50a
Traxdata CD-R discs (Box10)	£11c

LinServer Internet Gateway

LinServer - An Internet Gateway & File Server running LINUX (UNIX® for PC's) which supports PC, NC & RISC OS Computers



LinServer is an incredibly robust and dependable File, Print & Internet Gateway server providing virtually every internet resource AND it doesn't cost the Earth! There are NO licensing issues on the number of users supported. LinServer supports over 10,000 users, the limit being only storage capacity and RAM. It supports PC's, Network & RISC OS computers. You can literally place this server in a secure room and forget about it, being almost completely self maintaining except for user administration.

Standard features;
NFS, LanMan file server
- with disc quota's
POP3/4, SMTP
- Mail Server
NNTP News Server
Web/Proxy Server
FTP Server
Printer server
Virus Protection
Fax Server
Internet dial-on-demand
- using ISDN or modem
Dial-in modem access
RISC OS Server Tools
... Plus many more.

Contact us now to for further details or to arrange a demonstration.

Open Mon-Sat 10-18.00 hrs (All prices INCLUDE VAT) Carriage not included. Tel: 0845 458 0778 (Local Rate)

Monitors (Carriage £12)

Older computers will require an adaptor £12

Samsung 15" Monitor £135
FST, 0.28" dp, 1024x768, 30-54kHz & pre-sets.
Samsung 17" Monitor £205
SM750S FST Tube with 0.28" dot pitch
Samsung 17" Monitor £270
SM750P FST Tube with 0.26" dot pitch

Memory

Following prices strictly whilst stocks last.

Risc PC/A7000 SIMMS
32Mb £55a | 64Mb £Calla
Risc PC VRAM
1Mb 2nd user £20a | 2Mb £79a
Call for details of memory for other models.

Hard Drives/Interfaces+

Carriage: a=£3, b=£8, c=£10

Hard Drives
Quantum 10Gb IDE £110b
Call for other HD sizes
10,000rpm Cheetah drives useful for VideoDsk
Simtec IDE Interface £55a
Supports up to 4 AT devices including Hard Drives, CD-ROM drives and zip drives.
Add £15 for A3000-A4000 version.
Cumana SCSI II Card £175b

CD-ROM Drives

Internal CD-ROM Drives
Toshiba 36xCD **ATAPI** £40c
Cable & Fitting Kit £10a
Compatible with RISC OS 3.60 or greater.
Add £55 for External Drive
- A suitable cable will be required for ext units.

I³ Networking (Carr. £7)

All cards are 10BaseT only for Combo add £10
A30X0 EtherLan 101 £110
Archi EtherLan 511A+ £110
RPC/A7k EtherLan 601 £110
All ethernet cards include Acorn Access+

Modems/ISDN (Carr £10)

Budget 56kVoice Modem £75
3Com 56k Voice Modem £85
3Com 56k Message £100
D-Link ISDN2 Router £220
- ISDN Router with 6 port 10BaseT hub & Two
- analogue phone ports, which can take
- incoming ISDN calls and full NAT.
ANT Internet Suite II £116a
9-25 Archi or PC Wired Modem Cable £12ea.a
3-way Serial T-Switch (incl. comm. cable) £32b

Portable Computers

Carriage: a=£3, b=£8, c=£10

Psion 5 8Mb RAM £Callc
- includes PsiWin Link
Psion Revo 8Mb £Callc
AutoRoute Express £105a
- one of the best packages for the PBII/3a
Psion/PkBk Mac Link £20a
PsiRisc £67a
PsiRisc with Cable £Calla
PsiRisc cable (for 3c/3MX) £28
Ser.3/3a Mains Adaptor £10a
Ser.5 Mains Adaptor £10b
Backup Battery £3a

RiscPC Upgrades

233MHz StrongARM £299b
- Includes RISC OS 4.02
233MHz StrongARM £Callb
- Includes RISC OS 3.70
586-133 PC Card (512kb) £200c
PC Pro v3 £70a
Windows '95 CD (Full) £80a
- Can be installed without any prev OS present
2nd Slice without PSU £90c

Printers (Carriage £10)

Epson 460 (720x720dpi) £Call
Epson 660 (1440x720dpi) £Call
Epson 760 (1440dpi) £Call
Epson 860 (A4) £Call
Epson Photo EX (A3) £Call
HP LaserJet 1100 (8ppm) £295
HP LaserJet 2100 (8ppm) £550

Zip/Jaz Drives

Include Our JazZip tools
- £10 if purchased separately
Ext Para zip + 6 Discs £125c
- add £29 for RiscOS Parallel Driver
100Mb ATAPI Zip Drive £60c
- suitable for Simtec IDE card.
100Mb zip cartridge £11a
Pk of 6 zip discs+caddy £46b
Jaz 2Gb Internal £Callc
Jaz 2Gb External £Callc
Jaz cartr. 1Gb £68/2Gb £73a
Carriage: a = £3, b = £8, c = £10, d = £15

Scanners (Carriage £10)

Epson Colour Scanners
Include ITWAIN & ImageMaster for RISC OS.
Bundles include software for PC's/PC Cards
GTx-7000 SCSI bundle £245
GTx-9500 Para bundle £Call
GTx-9500 SCSI bundle £Call

Hardware Upgrades



£15 Incl

200W (PMPO) Speakers
- Incredibly good sound at the price
Citizen DD Floppy Drive £25b
- Suitable for A3000, A300, A400 &
- A540 series machines.
Citizen HD Floppy Drive £20b
- Suitable for all machines except A3000, A300
- A400, A540 series machines. Please note
- this drive respects the HD hole explicitly ie
- you cannot format HD discs to DD & vice ver.
Joystick I/F (Not Risc PC) £5b
Logitech Mouse (Acorn) £20a
Logitech Mouse (PS/2) £25a
RISC OS 4 Upgrade £116b
Scart Cable (9 or 15 pin) £12a
Serial Upgrade (A3000) £29a

CD-ROM Software

RiscCafe (JAVA) £39.95a
Corel Photo Sampler CD £5a
Hutchinsons Encyclopedia 92 for RiscOS £2a
Hutchinsons Encyclopedia 97 for PC only £5a
RiscDisc Vol 3 CD £5a
TopicArtCD (DTP) £2a

Games (Carriage £3)

Prices below whilst stocks last
Birds of War (4D) 2Mb £5a
Carnage Inc (4D) £5a
Chopper Force (4D) £5a
E-Type II (4D) £5a
E-Type Compendium (4D) £5a
Frak (A7000/RiscPC) £14a
Gods (Krisalis) £5a
Holed Out Compendium (4D) £5a
Last Ninja £5a
LogicMania Compilation (4D) £5a
Shuggy £5a
Simon the Sorcerer 2Mb (Floppy) £27a
Stunt Racer 2000 Extra Tracks (4D) £5a
Virtual Golf Augusta Course (4D) £5a
Wolfenstein 3D (SA Compatible) £5a

Applications

100 Monotype Fonts £10a
Anagram Genius £5a
ANT Internet Suite II £116a
ArcFax £34a
CD Blaze £80
Compression £5a
Desktop Database (iota) £20a
FastSpool+ £20a
HTML Edit 4+ £47a
ImageFS2 £43a
Imp Graphics Loaders £10a
Magpie (Longman) £15a
MidiWorks Light £15a
Mr Clippy Site Licence £15a
PC Pro v3 £70a
Shares5 £10a
ShapeFX £5a
SparkFS £24a
Web Design T'kit £10a
WebTool £10a

Educational (Carr. £2)

10/10 Series £5a each
Maths (Algebra) (6-16), Maths (Statistics) (6-16), Maths (Geom'y) (6-16), Essential IT,
Anagram Genius £5a
FunSchool3 (u5, 5-7, or over 7) £5a
FunSchool4 (u5, 5-7, or over 7) £5a
Ther's Terrible Trumpet £5a
Wizards Revenge £19a

Books (No VAT) Carr £4

Carriage: a=£3, b=£8, c=£10,
Budget DTP (Dabs) £1
Graphics on the ARM £1
RISC OS 3 First Steps £1
Wimp Progr for All £10
- complete with disc

Printer Consumables

Epson Cartridges
S020047 Black £19a
S020089 Colour £19a
S020093 Black £19a
S020108 Black £19a
S020189 Black £19a
S020191 Colour £19a

Printer Consumables

Canon Cartridges
BC-02 £19a
BC-20 £23a
BC-21 £32a
BCI-21Bk £8a
BCI-21C £15a
BC-22 Photo Cart £39a
BCI-60 Black £25a
BCI-61 Colour £18a
BJI-201HCbk Black £9a
BJI-201bk Black £6a
BJI-201C/M/Y £8 ea.a

Hewlett Packard
HP51625A Colour £24a
HP51626A Black £23a
HP51629A Black £23a
HP51649A Colour £24a
C3903A (LJ5P/6P) £64c
HP92274A (LJ4L) £54c
EP-L (LBP-4) £64c

Terms & Carriage

Carriage:a=£3, b=£8, c=£10

Carriage: To benefit personal callers carriage is itemised seperately. The carriage indicated is for single items. Please call us for total carriage when ordering more than one item since it is not cumulative.

Terms: All prices include VAT except books. Carriage is not included unless otherwise stated. Carriage charges apply to mainland UK (excluding remote areas, Scottish Highlands, Channel Islands, IOM), elsewhere at cost. Orders MUST be accompanied by a phone number. Prices and spec's subject to change without notification. Goods subject to availability. Goods not offered on trial basis. Re-stocking fee on non-faulty returns. Educ Inst official orders accepted. E&OE.

Desktop Projects Ltd

Tel: 0845 458 0778
Fax: 0161 367 7244

4 Clock Tower Close, Hyde, Cheshire. SK14 1RS.
Open Mon-Sat 10.00-18.00 hours. Visitors by appointment only.
www.desktopp.demon.co.uk - email: info@desktopp.demon.co.uk.

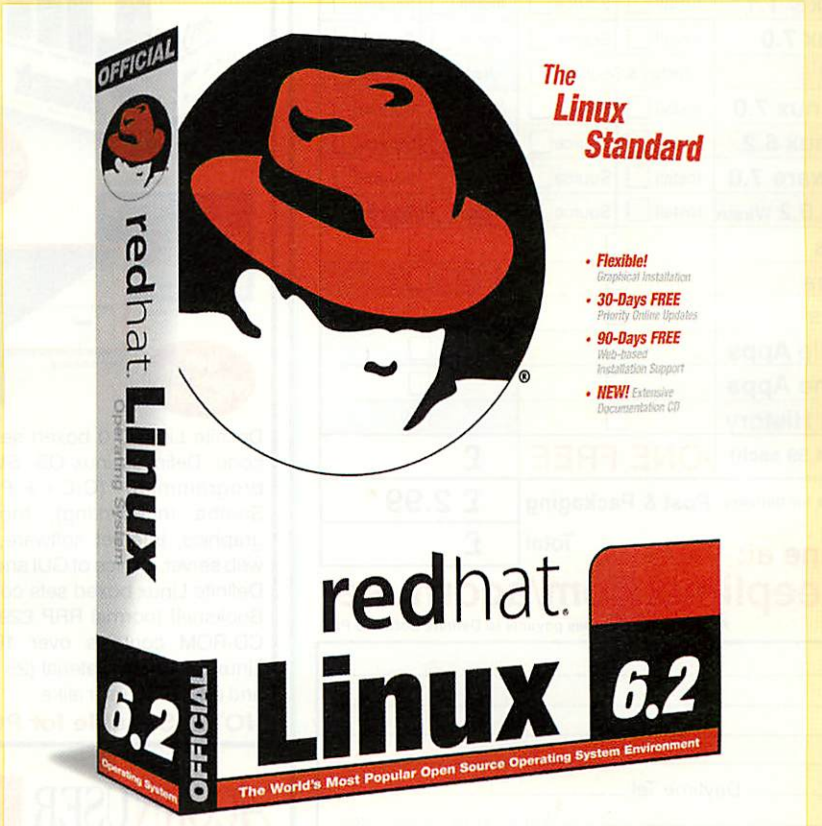
We Accept SWITCH Access VISA DELTA

RISCOS 4

JUN 00

Sign of good enterprise

Red Hat and Computer Associates have released Red Hat Linux Enterprise Edition featuring CA's *ARCserveIT*, a comprehensive storage management solution. This new offering is the latest in a line of collaborative efforts between the two companies.



The combination of Red Hat Linux and *ARCserveIT*, provides a comprehensive storage solution for Linux users, offering high performance, easy administration, flexibility and scalability for today's Internet infrastructure. This offering extends comprehensive storage management throughout the Linux environment with added client agent technology, tape library support and advanced tape management – and you thought tape was a thing of the past (you know I read these press releases and I wonder what pill of "blandness" the writer was on – a thousand words of noise, signifying nothing, anyway on to the important bits).

Features of the Red Hat Linux Enterprise Edition plus *ARCserveIT*: Scalable implementation, for any size environment; Customizable backup strategies; Fast and easy-to-use interface for backup, restore and device management; Support for Intel-based machines with virtually any tape or removable drive; Easy administration of local or remote servers from a single console; Management of multiple *ARCserveIT* job information in a single centralized database; Support from Red Hat and CA.

Pricing for begins at $2,995. The product will be available through CA's and Red Hat's value-added reseller channels, as well as through the redhat.com store, in early May.

Another epic

Red Hat recently announced that epicRealm Inc is intending to put out more than 1,000 Red Hat Linux servers as part of its global e-commerce network excitingly named "epicRealm" – a global commerce delivery service provider.

John Ferguson President and CEO of epicRealm (**www.epicrealm.com**) said: "Red Hat's expertise in open source Internet solutions and powerful operation systems make them an ideal fit for epicRealm. Red Hat is a forward looking Internet company that shares our vision to ensure businesses thrive in the new global e-marketplace."

epicRealm's planned worldwide network of servers enables e-business subscribers to dramatically transform and improve customers' online experiences through focused content distribution, traffic prioritization and customer interaction services. epicRealm's services include volatile content distribution, prioritization of Web traffic and content, and other site enhancement facilities aimed at improving customer loyalty.

Which is all very well (and sounds really exciting although frankly it could have come from Dilbert's random mission statement generator) but given the current lack of enthusiasm for non-profit IPOs it's debatable whether this wondrous plan will come to anything.

Giving it a fancy name doesn't make it good.

CPC — Good people to deal with!

CPC plc, Faraday Drive
Fulwood, Preston,
Lancashire PR2 9PP

Access · VISA · Switch · MasterCard

Computer COMMODITIES

Issue No.8

Valid from 29 April - 26 May 2000

Ordering is Easy

Open a Trade Account today or simply pay by Credit Card.

GUARANTEED same day despatch on all orders received before 7pm

- Open a trade account and benefit from 30 days credit.
- As a CPC Account Holder, you will receive your FREE copy of our Year 2000 catalogue, containing more than 2200 pages,
- Account Holders also get weekly promotional brochures containing selected products at special offer prices.

FREE DELIVERY* on all orders over £30.00 excl VAT

DON'T MISS OUT! Tel: 01772 654455 to open your CPC account.

To Place an Order:

- tel 01772 654455 (60 lines)
- fax 01772 654466 (10 lines)
- email sales@cpc.co.uk

IF YOU DO NOT WISH TO OPEN AN ACCOUNT, YOU MAY PAY BY CREDIT CARD

WE ACCEPT ACCESS, VISA, SWITCH, MASTERCARD

CPC's Sales Office is open 6 days a week
Mon - Fri 8.30am - 7pm
Saturdays 9am to 12 noon

CITIZEN ALWAYS A GOOD IDEA — Colour Printer/Scanner

FROM ONLY £69.99 — NEW

See page 13



Retail Plus+ 52x IDE CD-ROM Drive

NEW — FROM ONLY £32.99



See page 8

BTC® 5123 Keyboard

NEW — FROM ONLY £4.99

See page 5



A4 TECH Wireless 4D Mouse

See page 3

FROM ONLY £12.55 — NEW



SiS 6326 PCI 4Mb Graphics Card

FROM ONLY £19.25



See page 32

SEE INSIDE FOR MASSIVE SAVINGS ON:

- Sound Cards • Motherboards • Modems • Disk Drives
- Storage Systems • Printers • Speakers • CPUs

and much more!

tel: 01772 654455 fax: 01772 654466

CPC — A Premier Farnell Company

Combination Parent and Child Mouse Set

- Connected together using switchable adaptor
- 2 button child mouse, 3 button parent mouse (400dpi)
- Supplied with setup diskette
- Serial port design



While Stocks Last

order code	price each
SB01305	£2.05

Genius NetScroll + Mouse

- Combination PS/2 and Serial mouse
- 'Magic Roller' feature for browsing up/down, left/right on the internet or windows documents
- Zoom in/out feature in Office 97 and internet explorer
- Instant access to eight internet and windows functions
- Min. Sys. Req.: P166, Windows 3.1/95/98/NT
- Contents: Mouse, Driver Diskette, Mousemate 98 Software, PS/2 to Serial Adaptor



NEW

order code	price each 1-4	5+
CH74292	£5.97	£5.51

A4 TECH Fast Mouse

NEW

- 520dpi resolution and fast tracking speed
- PC99 colour connectors
- Available with PS/2 or Serial connector
- Compatible with Windows 3.1/95/98/NT

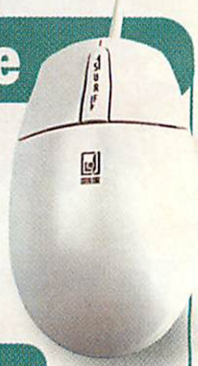


order code	Connector	price each 1-4	5+
CH75557	PS/2	£2.10	£1.91
CH75556	Serial		

DIGITAL EDGE First Mouse

Reliable, high precision PC compatible 3 button mouse designed for quality and value.

- Anatomic shape
- High precision dynamic tracking
- Serial and PS/2 combination connector
- Left or right hand use
- Compatible with all major application software including Windows 3.1/95/98



order code	price each 1-4	5+
CH65160	£6.38	£5.89

PS/2 Mouse

Incredible Value

Features

- Fits right and left handed users • 420 DPI
- Supplied in colour retail box • 1.4m cable
- 3.5" driver diskette (DOS/W3.1/W95)
- Two (PS/2) buttons with quality microswitches



order code	mouse type	price each 1-4	5+
CH09732	PS/2 (6 pin mini-DIN)	£3.79	£3.73

AirMouse Scrolling Mouse

Features

- 8 direction scroll button for easier scrolling
- 2 standard mouse buttons • 1.3 metre cable
- 2 SmartButtons which access 8 preset functions including:- program switching, autoscroll, data zoom, Web page change
- PS2 connector fitted but serial adaptor (9 pin) supplied
- Microsoft IntelliMouse compatible mode
- Windows 3.1/ 95/ 98/ NT compatible (only 2 button in DOS)

Contents AirMouse, PS/2-AT adaptor, user instructions and driver disk .



FROM ONLY £7.20

order code	price each 1-9	10+
SB00822	£7.70	£7.20

PS/2 Mouse

PS/2 mouse with 2 buttons and 6-pin mini-DIN standard connection



LOGITECH

order code	price each 1-9	10+
CH50939	£4.30	£4.20

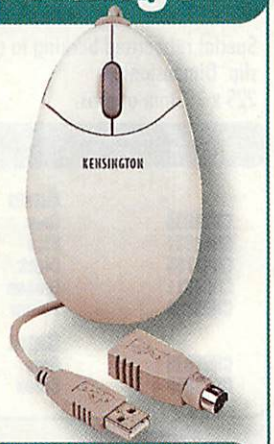
Archimedes Compatible Replacement Mouse

A three button mouse designed as a low cost replacement for existing Archimedes mice. The buttons use individual, sealed microswitches for higher reliability. Connection is via 9-way mini DIN plug with 5ft of cable.



order code	price each 1-24	25+
CH01663	£8.54	£8.43

KENSINGTON Mouse-in-a-Box Range



NEW

Mouse-in-a-Box PC
- 2 button mouse
- Combination Serial and PS/2 mouse
- Windows 95/98/NT

Mouse-in-a-Box Mac
- 1 button mouse
- ADB port connection
- System 7 and OS8 compatible

Mouse-in-a-Box USB
- 3 button mouse including wheel
- Autoscroll feature
- MouseWorks software included
- Combination USB and PS/2 connection
- Windows 98/NT

order code	mouse type	price each 1-4	price each 5+
CH74986	PC	£10.86	£10.09
CH74988	Mac	£30.26	£27.93
CH74802	USB	£19.70	£18.11

KENSINGTON TurboBall

NEW



Sculptured design maintains a neutral hand position, helping to reduce strain and fatigue.

- 4 customisable buttons
- Large tracking ball for fingertip control
- Scroll wheel for speeding through long documents and web pages
- Ideal for left or right handed users
- MouseWorks software included
- Combination USB and PS/2 connector
- Requires Windows 98 or above

order code	price each 1-4	price each 5+
CH74989	£34.58	£31.92

Joypad



While Stocks Last

Model AJP384A

Features
- IBM compatible
- 6 standard function/fire buttons
- 8 direction control pad
- Turbo function
- 5 foot cable with 15 pin connector
- 2 extra fire buttons on front edge (dependant on game)

ONLY £3.99

order code
SB01268

A4 TECH Wireless 4D Mouse



- 520dpi resolution
- Two button mouse with side scroll wheel with two top scroll wheels
- Two transmitters for wide angle (160°) operation
- Battery saving mode powers on/off automatically
- Scrolling in Windows 3.1/95/98/NT and zooming in Office 97/2000
- PC99 colour connectors
- PS/2 connector
- Contents: Mouse, Driver Diskette, 2x AAA batteries
- Compatible with Windows 3.1/95/98/NT

NEW

order code	price each 1-4	price each 5+
CH75560	£13.80	£12.55

Competition PRO PC Controller Pad

- 8 way super switch
- 4 action buttons
- Turbo fire

NEW



order code	price each 1-4	price each 5+
CH74501	£4.33	£4.00

Action Pad

- Digital pad for PCs
- 6 fire buttons
- 8-way directional thumb controller
- Auto-fire/two speed
- Slim design for easy control

Logic 3



order code	price each 1-4	price each 5+
CH46048	£5.32	£4.71

KENSINGTON WebRacer Internet Mouse



- Enables quick and easy web browsing
- Scroll with touch of a finger on WebRacer's in-built touchpad
- Go immediately to your favourite web-site at the touch of one of WebRacer's six pre-sets
- Find your bookmark and favourites by pressing our unique menu button
- Get your e-mail, print, go forward, go back, reload, stop loading, all with the press of a button
- Use with or without a mouse or trackball
- 2m connecting lead
- Windows 95/98 NT

NEW

order code	price each 1-4	price each 5+
CH74787	£33.94	£31.51

Joystick Switch

Model: Quickshot Qs-5845

Features:
- A manual 4-way joystick switch
- Variable Turbo control for all 4 inputs
- MIDI input on port 1 only
- Suckers on rear for stability/mounting
- Active joystick LED indicator
- '2 player' mode (uses basic functions only)
- Four foot connection lead

ONLY £3.99



While Stocks Last

order code
SB01403

Playstation Scart Cable

A 1.9m lead which enables the video output from a playstation to be connected to television/video/monitor using the Scart connector.
The device also provides phono sockets for audio L + R, and video.



Logic 3

order code	price each 1-4	price each 5+
CH55002	£4.11	£3.73

Competition Pro Playstation Flashfire Laser Gun and Footpedal

NEW

- Force feedback jolt action with trigger press
- Compatible with Namco shooting titles
- Footpedal included
- G-con connector included



order code	price each 1-4	price each 5+
CH74500	£15.00	£13.85

Protector 2 Dual Format Automatic Light Gun

- Compatible with playstation (normal or namco guncon mode) and sega saturn
- Twin speed auto fire
- 3 bullet reload
- Auto fire and reload (machine gun mode)
- Vibration on/off with each shot
- Safe lock control
- Battery not required



Logic 3

order code	price each 1-4	price each 5+
CH55010	£18.88	£17.53

Microsoft SideWinder Precision Pro Joystick

- Fully digital-optical technology
- Programmable button functions
- SideWinder Game device software
- Built-in digital-optical "camera" provides pinpoint accuracy
- Ergonomic Design

order code	price each
CH40734	£41.80



Standard and Deluxe Mouse Mats



Special rubberised backing to avoid slip. Dimensions:
225 x 195mm approx.

order code	description	price each 1-9	price each 10+
	6mm		
CH00835	Grey	94p	87p
CH00837	Blue		
CH01706	Black		
CH00811	Greeen		
CH00812	Yellow		
	8mm		
CH00838	Grey	96p	88p
CH01396	Green		

SUPPORT ENGLAND DURING EURO 2000!

Official Football Kit Mouse Mats



order code	team	order code	team
CH65000	Aston Villa	CH64991	Manchester Utd
CH65085	Blackburn Rovers	CH67058	Manchester City
CH65086	Bolton Wanderers	CH64995	Middlesborough
CH67057	Bradford City	CH64994	Newcastle Utd
CH65004	Celtic	CH67059	Notts Forest
CH64993	Chelsea	CH65003	Rangers
CH67054	Derby	CH67053	Sheffield Wed
CH64992	England	CH67062	Sheffield Utd
CH67055	Everton	CH67056	Southampton
CH67060	Fulham	CH67061	Stoke City
CH64996	Leeds	CH64999	West Ham Utd
CH65001	Liverpool (NEW ADDITION)		

price each 1-4	price each 5+
£5.20	£4.79

High quality mouse mats which are manufactured from non scratch, mark resistant material and cut to a kit shape.

- Dimensions (HxWxD): 265x220x5mm

IMPORTANT The kit designs illustrated are subject to change without notice. CPC will try to respond as quickly as possible to supply any kit design which may change.

Official Football Crest Mouse Mats

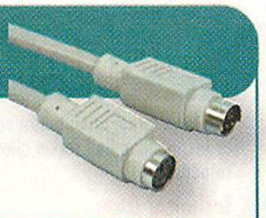
SUPPORT ENGLAND DURING EURO 2000!

High quality mouse mats which are manufactured from non scratch, mark resistant material and cut to a kit shape.

- Dimensions (HxWxD): 215x210x5mm

order code	team	price each 1-4	price each 5+
CH65007	Chelsea	£5.47	£5.05
CH65006	England	£5.47	£5.05
CH65005	Manchester Utd	£5.47	£5.05
CH65009	Middlesborough	£5.47	£5.05

PS/2 Extension

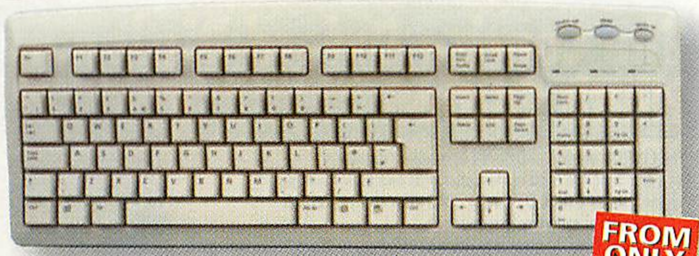


- Suitable for extending PS/2 devices (mouse or keyboard)
- 6-pin mini DIN plug to socket (M to F), grey in colour, 1.8m

Note: This is NOT a curly lead, it is a straight extension.

order code	price each 1-4	price each 5+
CH53299	£1.57	£1.39

BTC® 5123 Keyboards



FROM ONLY £4.99

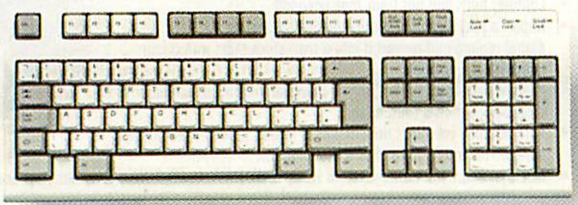
NEW

- 105 adjustable keyboard stand
- PC99 Serial or PS/2 connection
- Power off, sleep, wake up buttons

order code	mouse type	price each 1-4	price each 5+
CH75649	Serial	£5.38	£4.99
CH75650	PS/2	£5.38	£4.99

PS/2 Keyboard

A standard 102/105 keyboard made by ACER - Model 6512-T9U - with a PS/2 connector. It has adjustable feet and dimensions of (LxWxH) 460x165x25-50mm.



order code	price each
SB00704	£7.20

Windows '95 Keyboard

ONLY £7.20



A Win 95 compatible keyboard with adjustable feet (one position) and an AT connector.

order code
SB00821

ACCURATUS ACC295 Win 95 Keyboard

A quality, standard full sized keyboard.



- Designed for Windows 95
- IBM AT and PS/2 versions available
- Enhanced 105 key keyboard
- Soft touch, silent with tactile feedback
- Highly reliable membrane contact technology

order code	type	price each 1-4	price each 5+
CH39789	AT	£14.05	£9.21
CH39790	PS/2	£11.94	£11.09

LOGITECH Easy Internet Keyboard

- Quiet, tactile keyboard with excellent response
- Detachable palm rest for improved comfort
- Internet button which launches your favourite web site or application
- PS/2 keyboard, supplied with PS/2 to AT keyboard adaptor
- Sys.Req. Win 95/98/NT 4, CD-ROM Drive



order code	price each 1-4	price each 5+
CH68718	£18.99	£17.54

CHERRY G83-6105 Win 95 Keyboards



Cherry G83-6105 entry level 'soft touch' Windows 95 keyboards. Available in both AT (5-pin DIN) and PS/2 (6-pin min DIN) versions.

order code	type	price each 1-4	price each 5+
CH09852	AT (5-pin DIN)	£22.26	£21.22
CH09853	PS/2 (6-pin mini DIN)		

Multimedia Headset



A multimedia headset which combines a set of stereo headphones with a boom condenser microphone. An in-line volume control is included in the 1.8m cable, terminated in 3.5mm plugs.

Technical Data	Headphone	Microphone
Frequency response	20 - 18KHz	20 - 16KHz
Impedance	32 ohm	24 ohm

order code **SB01384**

price each 1-4 **£4.95** 5+ **£4.10**

Professional Headset



db boeder

A headset with boom microphone for use in multimedia, speech recognition and teleconferencing applications.

- 1.8m cable terminated in 3.5mm stereo jacks
- Padded, comfortable earphones
- Flexible arm boom microphone with windshield
- Headphones: 32Ω impedance, frequency response 18Hz-20kHz
- Uni-directional microphone, 600Ω, frequency response 100Hz-15kHz

order code **CH53295**

price each 1-4 **£9.80** 5+ **£8.64**

Multimedia Microphone



Model: CMP101

A circular Omni-directional multimedia condensor microphone

- Comes with holder and built-in clip • 20Hz to 16KHz frequency response
- Lead Length 2.4 metres with a 3.5mm plug

order code **SB00836** price each **99p**

While Stocks Last

IBM Desktop Microphone



The cable length is 2 metres and is terminated with a 3.5mm plug.

order code **SB00608**

price each 1-9 **£1.29** 10+ **£1.05**

Multimedia Microphone



Model Quickshot Qs-5838

Features

- Desktop design, adjustable angle
- On/off switch

ONLY **£1.55**

order code **SB01402**

While Stocks Last

Multimedia Microphone



Use for Internet communication, presentations etc. Connects to any sound card or fax/modem. Ball socket allows microphone to be positioned for optimum response.

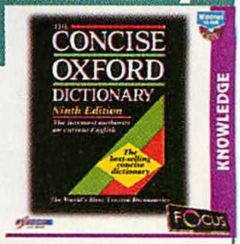
Genius®

Technical Data	
Directivity	Omni-directional
Sensitivity	-62dB ±4dB (at 1kHz)
Frequency Response	100Hz to 10kHz
S/N Ratio	>40dB (at 1kHz)
Connection	3.5mm stereo jack plug
Base Dimensions	(LxW)105x95mm approx.
Cable Length	2m

order code **CH38777**

price each 1-3 **£1.62** 4+ **£1.42**

The Concise Oxford Dictionary Ninth Edition



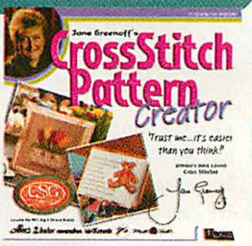
The CD-ROM version of Oxford's best selling dictionary

- Containing the most up-to-date words and their meanings, the Concise Oxford Dictionary is the most easily accessible reference of everyday language
- Features 140,000 meanings, from street slang to scientific technology
- Contains over 2 million words of text
- Minimum system requirements: 486 or higher, 8Mb RAM, 26Mb HDD, 2x CD/DVD, Win 3.1/95/98, Soundblaster or compatible

order code **CH62840**

price each 1-4 **£5.55** 5+ **£5.34**

Jane Greenoffs Cross Stitch Pattern Creator



Create dazzling cross-stitch designs or turn your pictures into cross-stitch patterns.

- Simple to use - ideal for total beginners or experienced stitchers alike
- Contains hints and tips from Jane Greenoff
- Import a photograph or picture via any scanner or digital camera and convert it into a cross stitch chart with colours matched to your wool
- Preview designs as stitches, colour blocks or symbols on screen or as it should appear on a chosen fabric
- Automatically calculates the amount of thread needed to complete a design. This can be printed as a shopping list.
- Min. Sys. Req.: 486 or higher, 2MB HDD, 16MB RAM, 4x CD-ROM, Soundblaster or Compatible Sound Card

order code **CH69061** price each **£12.78**

OREGON SCIENTIFIC Computer Internet Timer



A digital count up/down timer with a computer grey finish, making it suitable for use with computers. The right angled design allows the timer to sit on top of a PC monitor or base unit using the velcro fastener or to be desktop mounted.

- Dual display to show both session time and accumulation of session times
- Count up/down - 99hr 59min
- Accumulation memory function for adding many session times together
- Audible alarm when count reaches '0'
- Dimensions (WxHxD): 83x40x55mm

FROM ONLY **£7.95**

order code **CH38063**

price each 1-4 **£8.45** 5+ **£7.95**

Microsoft Windows 98 Software



Windows 98 Upgrade

Improves system performance and provides easier system diagnostics and maintenance. Also provides easier internet browsing. Supports the latest graphics, sound, and multimedia technologies with easy addition of peripheral devices. Contains USB and IEEE 1394 drivers. Min. system requirements: 486DX/66MHz, 16MB RAM, 120Mb-295Mb HD, CD or DVD ROM.

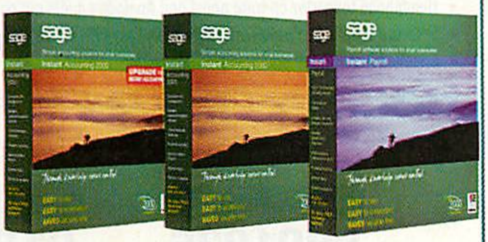
Microsoft Plus! 98

Companion upgrade for windows 98. Contains: McAfee VirusScan, Deluxe CD Player, Picture It! Express, Lose Your Marbles, Spider Solitaire, Microsoft Golf 4, Golf Lite and other enhancements.

Min. system requirements: P90MHz, 16MB RAM, 100MB-150MB, CD or DVD ROM.

order code	title	price each
CH51435	Windows 98 Upgrade	£79.99
CH54764	Microsoft Plus! 98	£37.50

SAGE Instant Accounting 2000 Software



Instant Accounting 2000 Sage products are recommended by accountants throughout the UK for their simplicity, convenience and time-saving features. Creating new accounts, entering opening balances and monitoring the financial health of your business is all made simple. On-line library provides access to useful tips and information.

Instant Payroll 2000 Employees' names, addresses, tax codes, and pay rates can be easily called up, and the data processed quickly and accurately. All current PAYE and National Insurance bands and rates have been pre-entered for convenience. All employees can be paid at the touch of a button with all the gross and net pay, tax and NI figures calculated automatically.

order code	title	price each
CH54778	Accounting 2000 Upgrade	£44.25
CH54777	Accounting 2000 Full Version	£89.45
CH54779	Payroll 2000	£89.45

Smartmedia Cards

3.3V Smartmedia cards for digital cameras. OLYMPUS



order code	size	price each
CH61323	8MB	£25.27
CH61324	16MB	£42.12

QuickCam USB Camera (OEM)



A video camera which connects to the PC's USB port and allows still and video capture.

- Records videos and takes pictures. Preview a video clip or picture directly on the screen.
- Edit pictures. Save pictures that have been taken and crop, resize or enhance them later.
- Communicate with others - Video Chat. An easy-to-use communication feature that allows video communication over the Internet.
- Send video clips and pictures via the Internet. After taking a picture transmit by email.
- Place videos and pictures into documents. Move images from the preview pad directly into other Windows applications.
- Create animations. A 'wizard' allows the user to create animation or time-lapse videos.
- Adjust camera settings. Change the camera setup for optimum performance.

Supplied with a mounting base, two mounting pads and a CD-ROM containing drivers and utility software.

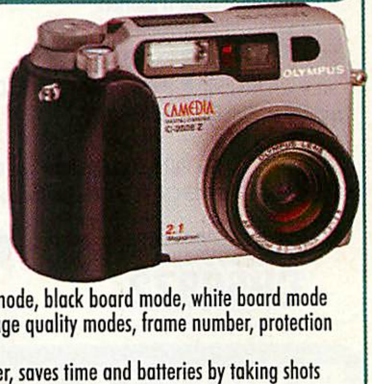
- In addition to taking pictures through the software interface, pictures can be taken directly by pressing the 'snapshot' button on the top of the camera.
- The camera mounts on a bracket which is designed to mount on any right-angled edge such as a monitor case or table top. The bracket is held in place by a self-adhesive pad, two of which are supplied.
- A microphone is mounted inside the camera, facilitating the recording of audio in addition to video.
- Manual privacy shutter.
- The supplied CD includes Logitech 'Camware' which is a feature packed utility for video capture, storage and manipulation.

The program also includes an extensive help facility.

Please note the following: *The unit requires Windows 98 for correct operation. As this unit is an OEM version, it is NOT supplied in a retail box or with an instruction manual. The CD-ROM does have a comprehensive help file on it.*

order code	price each 1-9	price each 10+
CH50940	£60.04	£55.84

OLYMPUS Camedia C-2020 Digital Zoom Camera



- Built-in 4.5cm colour TFT LCD monitor
- 12s delay timer function
- Built-in Flash
- 3x zoom for checking close up pictures
- Non-compressed TIFF images, Motion picture: QuickTime motion JPEG
- Flash modes - auto, red eye, fill in and flash off, slow synchronisation
- White balance - iESP full-auto TTL, manual (daylight, overcast, tungsten light (lamp), fluorescent light)
- Image effect - Sepia mode, black & white mode, black board mode, white board mode
- On screen information: Date and time, image quality modes, frame number, protection mark, remaining battery life
- DRAM technology for saving pictures quicker, saves time and batteries by taking shots at a fast rate
- Powered by 4xAA batteries (charger and Ni-MH batteries supplied)
- Supplied with a 3.3V 8MB Smatmedia card, 4xAA batteries and charger, Photoalbum 2.0 software for the PC and Mac (archives digital photographs)

Technical Data

Imaging Element	1/2" CCD (2.11M pixel)
Computer Output Images	640x480, 1024x768, 1600x1200 pixels
Lens	6.5-19.5mm (F2-2.8)
Aperture	Wide: F2-F11; Tele: F2.8-F11
Focus Range	0.2m - (infinity)
Connectors	DC input terminal, input/output (RS232C), Video output (PAL), external flash terminal
Weight	305g
Dimensions (HxWxD)	74x108x66mm

order code	price each
CH72144	£553.18

40x IDE CD ROM Drive

While Stocks Last



Model: Vintech VIN-40A
- ATAPI / IDE interface
- 40x Multiread CD ROM drive supports CD-R & CD-RW
- UDMA
- 128KB buffer
- Analogue and Digital audio output on rear panel
- Headphone socket and volume control on front panel
- Win 3.1, 95, 98, NT & OS2 compatible

Contents: CD drive, driver disk, audio cable and mounting screws.

order code	price each 1-4	5-9	10+
SB01134	£27.99	£24.99	£22.99

52x IDE CD-ROM Drive

Retail Plus+ Reliability & Consistency



NEW

- Multi-read: CD-DA, CD-ROM/XA, Photo CD
- Data transfer rate: 7800kB/s
- Ultra DMA33 compliant
- Contents: CD-ROM Drive, User Instruction and Driver Diskette, Sound Lead, Screws
- Min. Sys. Req.: 486, 16MB RAM, Windows 95/98/NT

order code	price each 1-4	5+
CH74258	£35.78	£32.99

HITACHI GD-2500 DVD Drive



- 3rd generation DVD-ROM drive for multimedia applications
- 24x CAV (CD-ROM)
- Enhanced IDE (ATAPI) interface
- CD-R/RW disk compatible
- 16.6MB/s burst transfer rate

Contents: GD-2500 DVD drive, driver disk for DOS/Win 3.1 (not required for 95/98), sound lead

While Stocks Last

INFO For full technical data see CS03936 on page 396 of CPC's Yr 2000 Catalogue

order code	price each 1-3	4+
CH50872	£87.25	£84.75

PCMCIA CD ROM Drives

An external PCMCIA CD ROM available in two speeds either 20 or 24



Model: True Mobile PSCD-740
- Compatible with PCMCIA 2.1 type II or III slots
- Uses Teac drive mechanism • 512Kb buffer
- Compatible with DOS, Win 3.1/ 95/ 98 /NT4.0 & OS2/Warp
- Headphone socket and volume control
- Play, Stop, Pause and skip buttons
- Powered from PCMCIA slot or external 5V DC adapter (not supplied) • Retail boxed
- Dimensions: 145 x 150 x 21mm (LxWxH) • Weight: 450g

Contents: CD ROM, PCMCIA lead, Audio lead 3.5/3.5mm, Manual and Driver disc

Optional Extras	order code	price each 1-2	3+
20 speed CD ROM	SB01370	£82.50	£71.99
24 speed CD ROM	SB01241	£89.25	

Headphones - See CPC's catalogue for full range.

1.0Gb External PCMCIA Hard Drive



Ideal for use with notebook or laptop computers.

- Can be powered from the PCMCIA port, if suitable, or via an external DC adaptor (not supplied)
- Uses either a type II or III PCMCIA port
- Dim: 85 x 140 x 30mm (WxDxH)
- Compatible with Windows 3.1/95/98/NT, using PCMCIA Release 2.1, Compliant Card/Socket service

Contents: PCMCIA cable, External drive and carry case

order code	price each 1-2	3+
SB01371	£92.99	£82.50

Delta CD-RW Recorder

Model Delta OME-W141



- ATAPI EIDE 20 x Read, 4 x Write, 4 x ReWrite recorder
- Uses a Ricoh CD mechanism
- Mountable in a standard 5.25" bay, Vertical/Horizontal
- Utilises Track at Once, Disk at once, Packet Write & Multisession writing modes
- Formats supported: CD-DA, CD-ROM, CD-Extra, CD-ROM XA, Photo CD, CD-I, Video CD and CD-ROM+CD-DA
- Capacity is 650Mb using a 74 minute disk
- Headphone connector on front panel and Analogue audio out on rear panel
- Software supplied : PhotoGenie, Direct CD, Easy CD Creator and DIY-RW
- Supplied in full retail packaging • 2Mb buffer

System Requirements: Pentium 100MHz(min), 32Mb RAM, Win 95/98, Win NT4.0 (pack 3)

Contents CD-RW recorder, Manuals, Software, Mounting screws and Audio lead

order code	price each
SB01236	£136.99

i-Stor CD-RW Recorder

Model Wearnes i-Stor CDRW1688



Features
- ATAPI EIDE 16 x Read, 4 x Write, 4 x ReWrite recorder
- Utilises Track at Once, Disk at once, Packet Write & Multisession writing modes
- Formats supported: CD-DA, CD-ROM, CD-Extra, CD-ROM XA, CD-I and Video CD
- Headphone connector on front panel and Analogue audio out on rear panel
- Capacity is 650Mb using a 74 minute disk
- Software supplied : NTI CD-maker
- 2Mb buffer • Supplied in full retail packaging

System Requirements
Pentium 100MHz(min), Win 95/98, Win NT4.0 (pack 3)

Contents CD-RW recorder, manual, CD-RW blank disk and software

order code	price each
SB01378	£164.99

PCMCIA DVD/MPEG-2 Card



- Plays full-screen, full motion DVD/MPEG-2 video playback at 720x480 resolution
- NTSC/PAL S-video or composite TV output
- PCMCIA type II card
- Supports Dolby AC3 digital surround sound
- S-video, composite video, and 2 channel audio output
- Compatible with CSS decryption and region code
- User friendly DVD navigator
- Supports karaoke mode
- System requirements: P166 or faster, 16Mb RAM, 10Mb HDD, ZV port enabled notebook, DVD-ROM drive, Windows 95/98
- Contents: Type II PCMCIA DVD/MPEG-2 card, DVD navigator and driver diskette, TV/Audio output cable, User manual

order code	price each 1-4	5+
CH60981	£179.84	£162.55

PHILIPS 4x4x32 EIDE CD-ReWritable Drive



Model PCRW 404K

- 4x Write, 4x Rewrite, 32x Read
- Write speed 1x: 150kB/s, 2x: 300kB/s, 4x: 600kB/s
- Rewrite speed 4x: 600kB/s • Read speed 32x: 4.8MB/s
- Access time:115ms • Data buffer:2MB
- Exclusive metallic design
- Supplied with Write2CD recording software with CeQuadrat packet writing (English, French, German, Spanish, Italian)
- Supports all major CD formats (Not DVD)
- Horizontal or vertical mounting
- **Contents** CD RW Drive, User manual, Drivers disk, Sound card lead, IDE lead, 1x Blank Philips CD-R74 and CD-RW74 disc, Screws
- **System requirements** Win 95/98/NT, P75, 16MB RAM, 12MB HDD

order code	price each 1-4	5+
CH66340	£203.85	£189.29

56K Internal Modem

FROM ONLY £20.99



An internal PCI bus 56K modem.

- Supports: V90, K56Flex, V34, V32, V22, V21, V23 Data & V17, V21, V27ter Fax
- V80 (H324 video conferencing)
- Comes with Supervoice • REN 1
- Voice/Audio mode
- Full duplex speakerphone
- Sockets on rear for external Mic and speaker via 3.5mm jack. Phone and Line RJ45 sockets.

System requirements: Win '95, '98 and P150 MMX processor or greater, 16MB RAM

Contents Modem, User Instructions, Line cord and CD ROM with drivers and software.

order code	price each 1-2	3+
SB00710	£24.60	£20.99

56K Internal Modem

FROM ONLY £35.99



Features

- 56K Data/Fax and Voice, inc Full Duplex speakerphone, internal modem
- Supports Data modes - K56Plus/K56Flex (56Kbps), V34, V32/32bis, V22/22bis, V21, V23
- V24 MNP2-4 error control and V42bis MNP5 data compression
- Compatible with Hayes AT command set
- Fax Class 1 command set
- Group III send/receive up to 14,400 bps
- Supports fax modes V17, V27ter, V29, V21
- Sockets on rear for mic in and speaker out using 3.5mm sockets • Onboard speaker
- Line in and telephone out sockets using RJ11 • Detects if Data/Fax or Voice incoming call
- Answerphone facility via software • REN is 1

Contents Modem, line cord, software - 'Supervoice' on CD ROM & Win 95/98 & NT4 drivers supplied on floppy, user guide

Technical Data System requirements: IBM compatible 386 or higher, with free 16 bit ISA slot. Win 3.1/3.11 or Win 95

order code	price each 1-4	5+
SB00578	£39.99	£35.99

External 56K/V90 USB Soft Modem



Model Wellink FM-56USB-ST

- Fully 'hot swappable', powered from USB port
- Uses the SGS Thomson chipset
- Compatible with Bell 212A/103, V22/22bis/32/32bis/34/34bis, K56flex, V90
- Group III fax compatible V17, V27ter & V29
- Uses CCITT V42/MNP2 -4 error correction
- Uses MNP5/V42bis data compression
- Video conferencing: H324, V80 compatible
- Comes with Supervoice Comms software (Win 98/NT4.0)
- Tone & Pulse dialling
- Dim: 65 x 33 x 130mm (WxHxD)

System Requirements: Pentium 233MMX, 32Mb RAM, USB port & Win 98 / NT5.0

Contents Modem, software on CD/Floppy, user guide and Line cord.

ONLY £39.99

order code
SB01368

PC Vision Kit

The hardware in this kit when combined with the award winning video conferencing software 'Vocaltec-Internet Phone 4.0' will allow long-distance voice and video communication for the cost of an Internet connection.



Features

- Supports full screen or a scaleable window
- Still or Full Motion video capture
- External composite and s-video inputs
- Supports colour depth of 15,16,24 or 32 bit
- Adjustable brightness, contrast, saturation and hue
- Free PCI slot required, PnP supported
- Win 95 drivers
- No VGA feature connector required
- Camera spec:
  - Pixels - 27,000
  - Lens - 4mm, F3.8, fixed iris
  - Focusing - manual
  - Object distance - 10mm to infinity
  - Video signal - Composite
  - Shutter speed - up to 1/2000 sec
  - Illumination - 10 lux min

ONLY £61.99

While Stocks Last

Contents Vid-com card, Camera, Mic and software

order code
SB01326

External 56K Voice/Data/Fax Modem

Model Wellink FM-56FT



- Full Duplex external Voice/Data/Fax Modem
- Speakerphone facilities using external speaker and mic
- Compatible with Bell 212A/103,V22/22bis/32/32bis/34/34bis
- Uses CCITT V42/MNP2 - 4 error correction
- Uses MNP5/V42bis data compression
- Tone & Pulse dialling
- Comes with Supervoice Comms software (Win 3.1/95/98/NT4.0)
- Dim: 125 x 45 x 230mm (WxHxD)

Contents Modem, software on CD, Ext PSU 9V ac @ 800mA, 9/25 way serial lead and Line cord.

order code	price each 1-4	price each 5+
SB01369	£39.99	£36.99

External 56K Modem

ONLY £42.50

An external 56K auto-detect K56Flex/V90 modem allowing users to add data facilities to a PC with no free internal slots, or where portability of a modem is required between machines.

Model H52PT-3020



- Error correction: V42, MNP 2-4.
- Compatible with the following protocols: V34, V32bis, V22bis, V22A/B, V23, V21, Bell 212A, Bell 103.
- Fax protocols: Group 3 send & receive. V17, V29, V27ter, V21. Command set 1 & 2.
- V80 and Rockwell Video Ready Synchronous access modes supported. • Data compression: V42bis, MNP 5.
- Power switch on rear.
- Redial, pulse/tone dialling, Autoanswer, Hayes compatible.
- AudioSpan (Simultaneous Audio/Voice/Data: SAVD) compatible.
- Front panel LEDs and sockets for Mic and Speaker. • Ren 1. • Full duplex speakerphone mode.
- Sockets on rear for Serial connection (25-way D), DC power, telephone line and phone.
- Dimensions: 175 x 125 x 28mm (DxWxH).

Contents
External modem, user manual, serial cable (25 way to 25+9), driver software for Win 95/98/ NT4.0 on CD ROM, SuperVoice on CD ROM, telephone line cord, AC adaptor 9V ac 1.0A.

order code **SB00730**

PCMCIA 56K Fax Modem



Features
- PCMCIA type II full Duplex Fax/Modem
- Compatible with Bell 212A/103,V22/22a/22bis/23/32/32bis/34/34 plus
- Group III fax compatible V17/29/27ter & V21
- Uses CCITT V42bis/MNP5 Data compression
- Tone & Pulse dialling
- Manual or Auto operation

Contents
Modem, Supervoice on CD and Line cord

order code **SB01239**

5.25" Adaptor for 3.5" Floppy Disk Drives

An adaptor consisting of a steel chassis adaptor and cream plastic front bezel to allow 3½" floppy drives to be fitted into 5¼" drive bays. Comes with all fitting screws.



order code	price each 1-9	price each 10+
CH01492	£2.47	£2.28

3.5" 1.44Mb Floppy Disk Drive

CITIZEN
ALWAYS A GOOD IDEA

Model: OSD-U

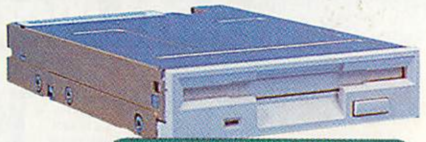


Standard 34 way IDE and 4 pin power connectors

order code	price each 1-4	price each 5+
SB01493	£10.99	£8.99

3.5" 1.44MB Floppy Drive

Description Mitsumi (D359T5)
Standard 34-Way and power connection



order code	price each 1-9	price each 10+
SB00233	£12.35	£11.60

3.5" 1.44MB Floppy Drive

SAMSUNG

Samsung standard 3.5" 1.44MB floppy disk drive. Industry standard 34-way IDC and 3.5" power connections.



order code	price each 1-9	price each 10+
CH39796	£12.86	£11.94

3.5" 1.44Mb Floppy Drive

Standard 34- way and power connection

SONY



order code	price each 1-9	price each 10-19	price each 20+
SB00087	£11.30	£10.75	£10.30

12.9Gb Hard Disk

Samsung 12.9Gb IDE UDMA hard disk - type SV1296A



order code	price each
SB01381	£108.99

2½" 6GB Hard Disk Drive IDE HITACHI

NEW

Model: DK23AA-60

9.5mm Thick

order code	price each
SB01494	£129.99

2¹/₂" 4Gb Hard Disk Drive

FUJITSU **Model:** MHC2040AT

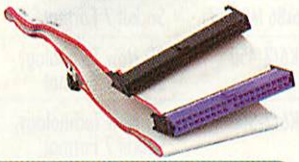
Height 12.5mm

ONLY £119.99

order code
SB01460

UDMA 66 IDE Lead

- Designed for UDMA ATA 33.3, 66.6
- 40-Way standard IDE connector with 80-way 30 AWG ribbon cable (450mm length)
- Master and slave configuration
- Can be used with existing IDE drives as well as the new high speed drives



order code	price each 1-4	price each 5+
CH72155	£8.45	£7.75

HDD Connection Lead

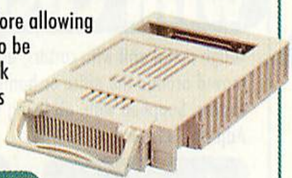


Hard Drives - IDE Controller to Twin HDD 40-way IDC **Length** 20".

order code	price each 1-9	price each 10+
CH01729	£1.41	£1.13

HDD Cradle - 3.5" IDE

A 3.5" HDD cradle which fits in a standard 5.25" bay therefore allowing 3.5" drives to be swapped between PCs or different drives to be used in one PC. It has a handle for easy removal and a pack of fixing screws. The connector between cradle and holder is a 50 way Centronics. Unit measures (tray in cradle) (LxWxH) 225 x 146 x 43mm.



order code	price each 1-9	price each 10+
SB00684	£7.20	£6.70

SAMSUNG 3.5" Hard Disk Drives

Spinpoint Series

3.5" High Performance HDD, Microsoft Certified, with acoustic noise suppression technology.

- Fast ATA-5 Compatible • Ultra DMA 66 Support • S.M.A.R.T. Compliant
- Weight: 1-1 lbs • Dims: 1"x 4"x 5.25" (HxWxD) • Buffer Size: 512k
- Av. Seek Time: 8.5msec • Spindle Speed: 5400rpm

order code	model	price each
SB01474	20.4Gb SV2044D	£99.99
SB01498	10.2Gb SV1022D	1-2 £72.99 3+ £69.99

3¹/₂" Hard Disk Drives

While Stocks Last

3¹/₂" Drives IDE

order code	description	price each
SB01366	8.4Gb (Seagate) Ultra ATA Model: ST38421A Spindle speed: 5400rpm Cache: 256kb Av. Seek Time: 10.5msec	£79.99
SB00819	8.4Gb (Samsung) Model: SV0844A Spindle speed: 5400rpm Cache: 512kb Av. Seek Time: 10msec	£92.99

fuji MX-1500 Digital Camera



- 1.5 million pixel CCD sensor
- High grade, aluminium alloy body
- 1.8" LCD Monitor • Built-in flash, auto focus • **Rechargeable** Ni-MH battery
- Contents: Camera, 4MB 3.3V Smartmedia Card, AC Adaptor, Video Cable, Hand Strap, Re-chargeable Battery, IBM PC and Macintosh Serial Cable, Data Transfer Software, TWAIN driver for download and camera control, photodeluxe from Adobe Systems Inc.
- Min.Sys.Req.: **PC** - 486, 66MHz, Windows 95,98 or NT4, 32 MB RAM, 180MB HDD CD-ROM Drive, **MAC** - 68040 or Power PC, 7.6.1 to 8.5.1, 32MB RAM, 80MB HDD,CD-ROM Drive

Technical Data

Resolution	1280x1024/ 640x480, 24 bit colour
CCD	1/2" CCD (1,500,000 pixels)
File Format	JPEG with 3 compression levels (1:4, 1:8, 1:16)
Storage Media	Smartmedia™ (3.3V, 2MB to 32MB)
Number of Stored Images	4MB Fine 5, Normal 11, Basic 22
Lens	F=38mm on a 35mm camera
Focus	Automatic, 10cm/3.9" to infinity
White Balance	Automatic/Manual (6 Modes)
Flash	Automatic, 2.5m/8.2ft(max.)
LCD Monitor	1.8" colour, LCD Monitor (110,000 pixels)
Output	Video and Serial
Power Source	2xAA batteries (Supplied), AC Adaptor (Not Supplied)
Dimensions (HxWxD)	69x104x31mm
Weigth	195g

order code	price each
CH67921	£239.60
CH65334	£28.94

Inkjet Refills



Made by Canon for Panasonic, supplied in original retail packaging, sealed from the factory.
They are suitable for the following machines:

Canon	BJC4000, BJC4100, BJC4200, BJC4550, BJC2500 & Canon Multipass
Apple	Stylewriter 2400 & Stylewriter 2500
Panasonic	KX-FA152
Packard Bell	KX-FA152

Order Code	Description	Price Each
SB01407	UG-3504 Colour cartridge	£4.60
SB01408	UG-3505 Black cartridge	£3.10

FROM ONLY £3.10

Removeable Hard Disk Cradle



This cradle allows a hard disk to be fitted into a PC and easily removed. There is an integral handle in the flush front panel.

All data connectors are gold plated for extra reliability. Suitable for all standard IDE 3½" x 1" drives; the tray fits in a standard 5¼" drive bay. All screws to connect the drive and the tray are supplied, as are two keys to stop unauthorised removal.

Technical Data

Dimensions: 225x145x42mm Compatibility: Standard 3½" x 1" IDE Hard Drives

Note: The two types are NOT interchangeable.

order code	1-4 price each	5+
CH08701	£16.11	£13.25

5 Chip 256k Cache

While Stocks Last



Supplied in packs of 5.
Type No. W24M512AK-15 No. of pins: 32

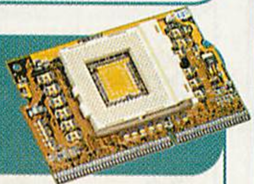
order code	price/pack
SB00118	£10.50

CPU Coolers

Heatsink and fan assemblies for the following:

order code	description	1-4 price each	5+
SB01164	Pentium II (fully encased type) to 350MHz	£4.40	£4.10
SB01166	Pentium II (semi encased type) SECC 2 up to 600MHz	£4.40	£4.10
SB01163	AMD K6/K6-2 166-350MHz & Intel MMX up to 233MHz	£2.35	£2.05
SB01165	AMD K6, K6-2, K6-3, 166-450MHz & Intel (socket 370) Celeron up to 466MHz	£3.10	£2.85
SB00627	Pentium II (fully encased type) to 350MHz (Model:HP21-1A)	£4.90	£4.10
CH35284	Heat sink and fan for Pentium (to 233MHz) and Cyrix P200 +, Dimensions: 31x50x53mm, Bearing Type: Ball	£3.10	£2.85
CH35285	Heat sink and fan for K6 (to 300MHz), Dimensions: 37x50x64mm, Bearing Type: Ball	£4.70	£4.30
CH35286	Heat sink and fan for Pentium II (233-266MHz) Dimensions: 55 x 120 x 19mm, Bearing Type: Ball	£10.88	£10.25

Socket 370 to Slot 1 Adaptor



This allows the new 'Socket 370' CPUs to be able to be used in the 'Slot 1' socket on motherboards. Uses the PII retention mechanism to lock in place. Jumper for 66/100MHz bus.

order code	price each
SB00807	£7.75

External PCMCIA 2.5" IDE Box

While Stocks Last



Features

- Allows the user to add an external HDD (2.5") via a PCMCIA slot.
- PnP compliant PCMCIA type II (Release 2.1) interface required.
- Supports PCMCIA hot-swapping feature. • No external power required.
- Transfer rate up to 2MB/sec - depending on drive type.
- Supports DOS (V5 or above) / Win 3.1/95/98/NT.
- Dimensions: 85 x 140 x 30 (WxDxH).

Contents Adaptor box, PCMCIA adaptor cable, driver disk & User instructions.

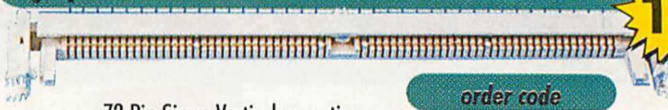
ONLY £35.99

order code
SB00708

SIMM Socket

While Stocks Last

ONLY 13p



72 Pin Simm Vertical mounting.

order code
SB00397

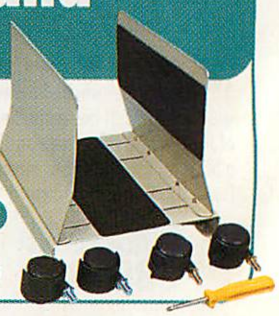
Great Deals on CPUs

While Stocks Last

product	description	order code	1-4 price each	5+
Cyrix 6x86 300	Socket 7 Format	SB00682	£29.25	£22.35
Cyrix M2 333	Socket 7 Format 83 MHz Bus	SB01412	£30.75	£23.99
Cyrix 6x86 M2 333	Socket 7 Format	SB00806	£30.45	£23.30
AMD K6/2-450	3D Now Technology, Socket 7 Format	SB01136	£61.45	£46.99
AMD K6/2-500	3D Now Technology, Socket 7 Format	SB01434	£57.95	£44.35
Intel Celeron™ 400	128K CPU Cache, New Socket 370 Format	SB00800	£70.75	£54.20
Intel Celeron™ 433	128K CPU Cache, Socket 370 Format	SB01437	£76.95	£58.85
Intel Celeron™ 466	128K CPU Cache, Socket 370 Format	SB01438	£77.65	£62.99
Intel Celeron™ 500	128K CPU Cache, Socket 370 Format	SB01439	£99.99	£76.50
Intel P2® 400	100MHz Bus, 512K CPU Cache, Slot 1 Format	SB00804	£152.30	£119.99
Intel P3® 500	100MHz Bus, 512K CPU Cache, Slot 1 Format	SB01138	£276.99	£211.75

Note: CPU prices subject to change

Deluxe Metal Stand with Castors



Tough metal unit with castors, allowing the unit to be easily moved around the office or home. Can also be used without castors. Supplied with all fixing screws.
Adjustable from 4 ¾" to 6 ¾"

order code	1-9 price each	10+
CH08584	£7.88	£6.45

Generic Memory Modules

While Stocks Last



order code	capacity		type		1-4 price each	5+
SB00338	4Mb	70ns,	9 Chip, SIMM	30pin	£11.45	£8.75
SB00145	4Mb	60ns,	EDO, SIMM	72pin	£8.95	£6.85
SB00235	8Mb	60ns,	EDO, SIMM	72pin	£12.85	£9.80
SB00553	16Mb	60ns,	EDO, SIMM	72pin	£25.85	£19.75
SB00561	32Mb	60ns,	EDO, SIMM	72pin	£47.50	£40.75
SB00786	64Mb	60ns,	EDO, SIMM	72pin	£69.85	£59.99
SB00339	4Mb	70ns with parity,	FPM, SIMM	72pin	£12.99	£10.50
SB00340	8Mb	70ns with parity,	FPM, SIMM	72pin	£12.00	£9.20
SB00312	16Mb	60ns,	FPM, SIMM	72pin	£26.75	£20.50
SB00342	16Mb	70ns with parity,	FPM, SIMM	72pin	£36.15	£30.99
SB00785	32Mb	10ns, (3.3V, unbuffered synchronous),	SDRAM DIMM	168pin	£28.99	£22.25
SB00562	32Mb	10ns	SDRAM, DIMM	168pin	£38.95	£33.45
SB00605*	64Mb	10ns, (3.3V, Synchronous DIMM, single height, unbuffered)	DRAM DIMM	168pin	£53.75	£46.20
SB00671	64Mb	PC100MHz	DIMM	168pin	£50.75	£38.85
SB00672	128Mb	PC100MHz	DIMM	168pin	£102.99	£78.85

** Please ensure your motherboard supports the above specification*

***Note memory prices subject to change**

Olivetti JP170S Mono Inkjet Printer

ONLY £39.99

This space saving inkjet printer comes with the following accessories:

- 3.5" driver disks for DOS/Win3.1/3.11/Win 95
- Paper out tray • Full documentation
- Black head/cartridge



While Stocks Last

Technical Data

Interface	Parallel Centronics
Emulations	PCL111 + IBM Proprinter x24
Resolution	600 x 300 dpi
Print Speed	Draft @ 180 cps, LQ @ 150 cps
Paper Handling	40 sheets integrated ASF, 3 pages per minute, envelopes, A4 type, A5 type (landscape)

Note does not have a tractor feed facility

Electrical Characteristics

-220-240V, +6%; -10%; 50-60Hz

Physical Characteristics

Printer ready for use

Height	14.17 in (360mm)
Width	14.76 in (375mm)
Depth	7.87 in (200mm)
Weight	4.84 lbs (2.2Kg)

optional extras

description	order code
Print Cartridge - Water Resistant Ink	OL2784431
Refillable Print Head + 3 Refill Cartridges	OL2782070
2 Refill Cartridges (Blister Pack)	OL2784433
Printer Lead	CSLEAD15

order code **SB00701**

XEROX Colour Printer

ONLY £59.99

Model: DocuPrint C8

Features

- Colour printing using a 4 cartridge system, therefore only replace the colour that is empty
- Resolution of 600 x 600 dpi on plain paper, 1200 x 600 on photogloss paper
- Print speed of up to 5 ppm black, 2.5 ppm colour
- 100 sheet feeder (60 - 160gm/m^2)
- Paper types: A4, A5, B5
  Envelopes: #10, DL, C6
  Banner paper: A4 x 5
- One year on-site warranty (UK)
- Drivers for Win '95, '98 and NT 4.0 (web download) and DOS (PCL3e compatible)
- Power: 100 - 240VAC • Weight: 4.5Kg
- Dimensions: WxHxD - 434 x 267 x 350mm



Contents: Printer, driver on CD, cartridges - 2 x Black, 1 x Cy, 1 x Ma, 1 x Ye, mains lead, instructions and LivePix Deluxe 2.0

Requires printer cable, IEEE 1284 preferred, such as CS02705

Optional Extras - Replacement Cartridges

Black Compatible	SB01484	£4.99
Cyan Compatible	SB01485	
Magenta Compatible	SB01486	
Yellow Compatible	SB01487	
Black Original	SB01488	£10.65
Cyan Original	SB01489	
Magenta Original	SB01490	
Yellow Original	SB01491	

order code **SB01467**

Document Shredder

While Stocks Last

Model Royal RS100

Features

- Accepts with paper widths up to 9⅜" (237mm).
- Shred width is ¼" (6mm).
- Up to 3 sheets can be fed at once.
- Auto or Manual start function with Auto shut-off.
- Reverse function. • Weight: 5.5lbs (2.5Kg).
- Shredding speed up to 16 feet per minute.
- Dimensions: 115 x 370 x 60mm (DxWxH).



Note: *No waste basket included.*

Contents: shredder, power supply (12Vac 60W) & user guide.

order code	price each
SB00723	£17.50

CITIZEN Colour Printer/Scanner

CITIZEN ALWAYS A GOOD IDEA

Model: PRINTiva 1700

A colour printer / scanner from Citizen which uses the Micro Dry printing system consisting of dry ink on ribbon cartridges to produce dots of a constant 40 micron size (inkjets 40 - 80 micron). Because of the dry ink dots, the page suffers no smearing, is waterproof and will not fade. The black output is denser than most inkjets and produces laser like text.



NEW

Features:

- Colour printing using a 4 cartridge/ribbon system, therefore only replace the colour that is empty.
- Resolution of 600 x 600 dpi colour; 1200 x 600 dpi monochrome
- 100 sheet feeder (90gsm) • Manual feed up to 220gsm
- Standard office, Smooth, Transparancy, Card and Postcard can be used.
- Drivers for Win 3.1, 95, 98 and EPSON LQ2500 emulation
- The TWAIN (not TWAIN32) compliant scanner has an optical resolution of 600 dpi with options of 75, 150,300 dpi.
- Scans may be carried out in Black & white, Greyscale, 256 and 16 million colours.
- Comes with Citizen's CopyStudio scan software, scans may be saved in BMP /PICT/ TIFF/ JPEG /GIF formats.
- Intensity and sharpness may be altered. • Maximum scan size of A4.
- 2 year warranty (UK) • Power: 220 - 240VAC 40Watts
- Dimensions: WxHxD - 425 x 185 x 235mm • Weight: 5.5Kg

Contents: printer, drivers on disk, cartridges - 1x Black 1xCy 1x Ma 1xYe, mains lead, instructions and MGI PhotoSuite

FROM ONLY £69.99

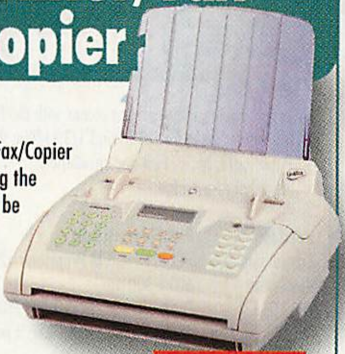
Requires printer cable, IEEE1284 preferred, such as CS02705

Cartridges:	Order Code	Price Each
Black	CZ3000055	£3.78
Cyan	CZ3000056	£3.78
Magenta	CZ3000057	£3.78
Yellow	CZ3000058	£3.78
Metallic Gold	CZ3000059	£3.78
Metallic Silver	CZ3000060	£12.99
Metallic Red	CZ3000061	£17.55
Metallic Blue	CZ3000062	£17.55

order code **SB01492**

price each 1-2	3+
£74.99	£69.99

Combination Printer/Fax Scanner/Copier



Model: Olivetti OFX1100 Linkfax

A plain paper combination inkjet Printer/Scanner/Fax/Copier which can be upgraded to a colour printer by adding the OL2784436 printhead. The fax/copier functions can be used without being connected to a PC, whereas for the scan and printer functions a PC is required. LinkFax 8 software is supplied for the PC interface (Win 3.11/95).

Features:
- Uses standard A4 paper, 70 page hopper
- Document feed for 10 sheets
- Comms speed 2400 - 9600bps
- Manual/Auto Rx/Tx • Will only scan in Black & White
- 21 page memory in case of paper out
- 10 'One-touch' & 32 Speedial memory buttons
- Various reports available to print out
- Power: 220-240V 50/60Hz • REN3 • Weight: 6.3Kg
- Dimensions (WxDxH): 325x420x230mm/ max with trays

ONLY £99.00

Contents: OFX1100, printhead storage box, parallel printer cable, black printhead, line cord, user guides and software on CD ROM.

OL2784436 Colour Printhead, disposable	**OL2784431** Black Printhead, disposable
OL2782070 Black Printhead & 3 cartridges	**OL2784433** Black cartridges (x2)

order code
SB01392

While Stocks Last

BT Plain Paper Fax/ Copier & Speakerphone



Model BT Image 350
- Uses film and thermal printhead to produce 'non-fade' faxes
- ADF feeder for up to 5 sheets of A4
- Paper sizes:
  Width 210mm min - 216mm max.
  Length 150mm min - 600mm max.
- Scanning method: CIS
- Four resolutions and 3 contrast settings are available
- Delayed transmission, Fax re-dial and Fax-back functions.
- Communicates at 9600/7200/4800/2400 bps.
- Holds up to 50 sheets of A4 in receive tray. • 200/240V 50/60Hz.
- 10 one touch dial memories and a 40 name directory memory. • Copy function.
- Answer machine connection. • Various reports are available to be printed.
- Handsfree telephone. • REN 1. • Dim: 280 x 220 x 280mm (WxDxH)

For replacement ink ribbon, order code TE02213

ONLY £119.99

Contents Image 350, user instructions, line cord, ext. PSU 24Vdc@2.2A, film.

While Stocks Last

order code
SB00879

BT Plain Paper Fax/ Copier & Answerphone



Model BT Image 370
- Uses film and thermal printhead to produce 'non-fade' faxes
- ADF feeder for up to 5 sheets of A4
- Paper sizes:
  Width 210mm min - 216mm max.
  Length 150mm min - 600mm max.
- Four resolutions and 3 contrast settings are available
- Group dialling, Delayed transmission, Fax re-dial and Fax-back functions
- Communicates at 9600/7200/4800/2400 bps
- REN 1
- Handsfree telephone
- 10 one touch dial memories and a 40 name directory memory
- 200/240V 50/60Hz
- Various reports are available to be printed
- Scanning method:CIS
- Digital Answer machine can store up to 15 minutes of messages (inc. OGM)
- A 40 page memory will retain received faxes if the paper runs out
- Holds up to 50 sheets of A4 in receive tray
- Dimensions: 280x220x280mm (WxDxH)

FROM ONLY £154.50

While Stocks Last

Contents Image 370, user instructions, line cord, ext. PSU 24Vdc@2.2A, film.

order code	price each 1-2	3+
SB00788	£164.99	£154.50

EPSON Stylus Photo 870 Printer

NEW



- A4 size, black and colour inkjet printer
- Micro piezo print head technology 48 nozzles (black) and 5 x 48 nozzles per colour (Cyan, Light Cyan, Magenta, Light Magenta, Yellow)
- Bi-directional print direction with logic seeking

Characteristics
- Noise level: approx. 38dBA during printing
- Maximum Resolution: 1440x720dpi in black and colour
- Print speed A4 page: Varies from 6s to 110s (Depending on resolution)
- Printer buffer: 256kB

Paper Handling
- 100 x A4 sheets (64g/m²) cut sheet feeder
- Paper size: A4, A5, A6, Letter, B5, Legal, Panoramic (210x594mm), Paper Roll (100mmx8m) Envelopes: C6 (114x162mm), No. 10 (241x104mm) and DL (220x110mm)

Dimensions
- (HxWxD): 175x470x285mm
- Weight: 5.6kg

Min.Sys. Req.
- 486, 16MB RAM, 20MB HDD, Windows 95/98/NT4

optional extras
Original Cartridges

For Black (T007401)	**Order Code EPT007401**
For Colour (T008401)	**Order Code EPT008401**

order code	price each 1-2	3+
CH73866	£242.14	£232.19

EPSON Stylus 1160 Colour Printer



- A3 and A4 size, black and colour inkjet printer
- Micro piezo print head technology 144 nozzles (black) and 48 x 3 nozzles per colour (Cyan, Magenta, Yellow)
- Bi-directional print direction with logic seeking

Characteristics
- Noise level: approx. 42dBA during printing
- Maximum Resolution: 1440x720dpi in black and colour
- Print speed A4 page: Varies from 6s to 103s (Depending on resolution)
- Printer buffer: 256kB

Paper Handling
- 100 x A4 sheets (64g/m/^{2}) cut sheet feeder
- Paper size: A3, A3+, A4, A5, A6, Letter, B5, Legal, Panoramic (210x594mm), Envelopes: C6 (114x162mm), No. 10 (241x104mm) and DL (220x110mm)

Dimensions
- (HxWxD): 175x609x311mm
- Weight: 8.4kg

Min.Sys. Req.
- 486, 16MB RAM, 10MB HDD, Windows 95/98/NT4

NEW

optional extras

description	order code	price each
Original Cartridges		
Black (SO20189)	CH75275	£15.49
Colour (SO20191)	CH75276	£16.40

order code	price each 1-4	5+
CH73867	**£363.27**	**£348.34**

Mustek Scan Express Range

Each scanner is supplied with software Uleads's IPhoto Plus package (MicroGrafx Picture Publisher on 12,000 models), Textbridge Classic OCR, Mustek scanning desktop and TWAIN drivers.



FROM ONLY £48.99

While Stocks Last

Technical Data

Model	ScanExpress 6000P	ScanExpress 12000 SP
Order Code	CH33476*	CH46427
Interface	EPP	SCSI
Colour Depth	30-bit 1.1 billion colours	36-bit 68.7 billion colours
Optical Resolution	600x300 dpi	1200x600 dpi
Interpolated Resolution	4800x4800 dpi	9600x9600 dpi
Single Pass	Yes	Yes
Scan Area	216 x 296mm	212.5 x 287.5mm
EPP Connection	Yes	No
Pass-through Parallel Port	Yes	No
Dedicated Power Supply	Yes	Yes
SCSI Interface	No	Yes
TWAIN Driver	Yes	Yes
price each 1-4	£52.99	£102.99
price each 5+	£48.99	£95.99

Inkjet Wordprocessor/Typewriters

Models:
Olivetti JetWriter 900
Triumph Adler Gabriele Inkwriter II



These typewriter/wordprocessor combinations have an LCD editing and menu screen with inkjet printing capabilities in a fully portable unit, weighing only 5.6Kg. The unit comes with a carry handle and a mains lead storage compartment.
Both wordprocessors are identical other than cosmetic differences.

Features:
- Other functions as well as Wordprocessor:
- Address Manager, Calculator and Spreadsheet (256 column by 999 lines)
- Built-in 80,000 word spellchecker • Mail Merge mode from Address Manager
- 5 built-in fonts: Courier, Swiss Mono, Swiss, Dutch and Murray Hill all with 5 point sizes - 9, 12 , 18, 24 & 36
- Print speed: 120cps • Single sheet paper handling • Built-in 3.5" floppy drive
- Power: 240Vac, 50/60Hz • Dimensions: WxDxH: 418x330x105mm

Contents:
Typewriter, printhead (OL2784435), user guide and tutorial disk.

Optional Extras:
OL2784435 Black printhead, disposable
OL2782077 Black printhead & 3 cartridges

Order Code	Model
SB01396	Olivetti
SB01393	Triumph Adler

ONLY £88.99 each

EPSON Stylus Color 660 Printer



- A4 size, black and colour inkjet printer
- Micro piezo print head technology 64 nozzles (black) and 32 x 3 nozzles per colour (Cyan, Magenta, Yellow)
- Bi-directional print direction with logic seeking

Characteristics
- Noise level: approx. 47dBA during printing
- Maximum Resolution: 1440x720dpi in black and colour
- Print speed A4 page: Varies from 12s to 120s (Depending on resolution) • Printer buffer: 32kB

Paper Handling
- 100 x A4 sheets (64g/m^2) cut sheet feeder
- Paper size: A4, A5, A6, 4x6", 5x8", 8x10", Letter, B5, Legal, Panoramic (210x594mm)
- Envelopes: C6 (114x162mm), No. 10 (241x104mm) and DL (220x110mm)

Dimensions
- (HxWxD): 157x429x231mm
- Weight: 5.2kg

Min.Sys. Req.
- 486, 16MB RAM, 10MB HDD, Windows 95/98/NT4

FROM ONLY £99.99

order code	description	price each 1-4	5+
CH73864	Printer Epson Stylus 660	**£108.00**	**£99.99**
CH75405	Original Cartridges Black (SO20187)	**£17.27**	
CH75276	Colour (SO20191)	**£16.40**	

Bare Bones Celeron System

Features

- Shuttle Intel 810 chipset motherboard, PGA370 socket
- 48 speed CD ROM • 3.5" floppy drive
- Integrated 4MB video • AC'97 onboard sound
- Stylish ATX Midi tower case with 3 External 5.25" bays (2 free), 3 Internal 3.5" bays (1 free) ATX 250W power supply, no monitor power socket, 250V ac both sides are removable for easy access
- Heatsink and Fan for CPU • Dimensions: 440x230x350mm (DxWxH)
- Drivers for all video/audio/motherboard/supplied, booklet for motherboard and power lead

ONLY £162.75



Note: No HDD, keyboard, mouse, CPU or memory supplied

Options:

- Memory
  - 32MB PC100 DIMM **SB00785**
  - 64MB PC100 DIMM **SB00671**
  - 128MB PC100 DIMM **SB00672**
- CPU
  - Celeron 400MHz **SB00800**
- HDD
  - 8.4GB Samsung **SB00819**
  - 12.9GB Samsung **SB01381**
- PS2 Keyboard **SB00704**
- PS2 Mouse **SB01383**

order code

SB01419

Bare Bones Socket 7 System

Features

- Shuttle SiS530 chipset motherboard, socket 7
- 48 speed CD ROM • 3.5" floppy drive • Onboard video
- Onboard sound • Stylish ATX Midi tower case with 3 External 5.25" bays (2 free) 3 Internal 3.5" bays (1 free) ATX 250W power supply, no monitor power socket, 240V ac both sides are removable for easy access
- Heatsink and Fan for CPU • Dimensions: 440x230x350mm (DxWxH)
- Drivers for all video/audio/motherboard/mouse supplied, booklet for motherboard and power lead

ONLY £149.50

Options:

- Memory
  - 32MB PC100 DIMM **SB00785**
  - 64MB PC100 DIMM **SB00671**
  - 128MB PC100 DIMM **SB00672**
- CPU
  - 6x86 300 **SB00682**
  - 6x86 333 **SB00806**
  - AMD K6/2 450 **SB01136**
- HDD
  - 8.4GB Samsung **SB00819**
  - 12.9GB Samsung **SB01381**
- PS2 Keyboard **SB00704**
- PS2 Mouse **SB01383**

order code

SB01420

IBM Aptiva Systems

While Stocks Last

LIMITED STOCKS

FROM ONLY £349.99



These systems are supplied complete with monitors (not upgradeable), mouse, speakers, cables and non IBM keyboards. All software is pre-installed (no windows disks supplied).

Model	IBM No	CPU	HDD	RAM	OS	Monitor	Graphics	Modem	CD	Sound	Case	Order Code	Price Each
Aptiva EP266	2138-E80	PII 266	4.0G	48M	Win95	15"	3D ATI AGP Rage Pro 4M	K56	24x	Crystal	MT	**SB00868**	**£349.99**
Aptiva SP266	2142-S36	PII 266	4.2G	32M	Win95	17"	3D ATI AGP Rage Pro 2M	33.6	24x	Crystal	MT	**SB00870**	**£499.99**
Aptiva EK6	2137-E74	AMD K2 300	4.0G	48M	Win95	15"	3D ATI Rage II+ 2M	K56	24x	Crystal	MT	**SB00872**	**£399.99**

Note: Items supplied with each individual order code (type of monitor/speakers etc.) will vary from those pictured above.

***Above system is supplied in black & remaining items supplied in white as pictured**

Case Refs: MT=Mini Tower

FURTHER INFO AVAILABLE ON THE IBM WEBSITE
WWW.PC.IBM.COM/SUPPORT

Cyrix 300MHz Multimedia PC



Features

- Cyrix 300MHz CPU
- Shuttle 599 motherboard, with onboard sound and graphics
- 32Mb of RAM
- 4.3Gb Hard Disk
- 3.5" floppy drive
- 48x CD ROM drive
- PS2 keyboard and mouse
- ATX Case
- Windows '98 preloaded (Win '98 supplied on CD)
- Drivers for all video/audio/motherboard/mouse supplied, booklet for motherboard

order code

SB01443

ONLY £333.75

PC Replacement (AT Type) Power Supplies



AT style PC power supplies for replacing faulty units or building into new cases. Input is via standard IEC connection with an IEC socket for monitor power. Outputs are 1 x motherboard, 4 x 5.25" type and 2 x 3.5" connectors. The unit has an on/off switch on a flylead for mounting on the case.

Technical Data

Dimensions (HxWxD)	86x150x140mm
Input voltage	115~230V ac 50/60Hz
Output Voltage	+5V, -5V, +12V, -12V
Approvals	UL, CSA, TUV, CE

order code	power rating	price each 1-9	10+
CH42894	**200W**	**£18.38**	**£16.85**
CH42901	**300W**	**£30.66**	**£28.81**

Celeron™ 433MHz Multimedia PC



Features:

- Intel Celeron™ 433MHz CPU
- Shuttle AV61 motherboard
- 64MB of PC100 RAM
- 8.4GB Hard Disk
- 3.5"floppy drive
- 52X CD ROM drive
- 8MB SiS AGP video card
- Creative Labs PCI 128 soundcard
- ATX Midi tower case
- PS2 keyboard and mouse
- Windows '98 preloaded (Win '98 supplied on CD)
- Drivers for all video/audio motherboard/mouse supplied, booklet for motherboard

order code

SB01458

ONLY £399.00

Pentium® 233 MMX Notebook

This notebook has the distiction of having a 'wide-screen' 10.4" TFT LCD display as well as being produced by a well established manufacturer.



Model Chicony MP980

- Pentium® 233 MMX CPU (not upgradeable)
- 32MB of SDRAM (upgradeable to 64Mb- order code SB01473)
- 512Kb level 2 cache • Award BIOS
- Intel 430TX chipset
- 10.4" TFT LCD screen, 225 x 133mm screen size, 1024 x 600 resolution
- Simultaneous LCD and external CRT operation
- PCI bus graphics with 2Mb RAM
- Removable Ultra ATA 2.5" Hard drive of 3Gb, for extra data security
- NiMH battery with charger 90-264Vac
- Connectors available: 1 x 9 way Serial ,1 x Parallel, 15 way SVGA, Audio Mic in/ Speaker out, 1 x USB, IrDA compatible, PS2
- PCMCIA slots (1 x Type II)
- Floppy drive is an external type using the parallel port
- Windows '95 keyboard with built-in Trackpoint (USA layout)
- 16 bit stereo sound using Yamaha 715 chipset, with built-in speakers and mic
- Dimensions: 280 x 175 x 35mm (WxDxH) • Weight: 1.6 Kg

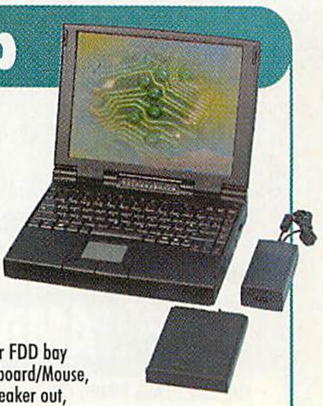
While Stocks Last

FROM ONLY £515.00

Contents:
Notebook, Carry Case, Manual, Ext FDD drive, AC Adaptor / Charger, 1 x Battery & Driver / Utility CD

description	order code	price each 1-2	price each 3+
Notebook with no operating system	SB01390	£530.50	£515.00
Notebook with Win'98 on CD	SB01391	£616.99	£596.50
Options:			
Ext CD ROM x 24 speed	SB01241	£89.25	
56k PCMCIA Fax Modem	SB01239	£46.35	

400MHz Laptop



Model CTX EzBook 700E Series

- AMD 400MHz K6/2 processor (upgrades n/a from CPC)
- 32MB of EDO RAM using 2 sockets, both used (upgradeable to 128Mb, n/a from CPC)
- 512Kb level 2 cache
- 12.1" Active TFT LCD screen, up to 800 x 600 @ 64K colours
- Simultaneous LCD and external CRT operation at 640 x 480
- PCI bus 128 bit GUI accelerator with 2Mb EDO RAM
- Removable 2.5" Hard drive of 3.9Gb, for extra data security
- Removable 3.5" Floppy drive
- Removable IDE x 24max CD ROM drive
- NiMH 12V 3.8AH battery can be installed in either CD-ROM or FDD bay
- Connectors available: 1 x 9 way Serial , 1 x Parallel, PS2 keyboard/Mouse, 15 way MIDI/Game, 15 way SVGA, Audio Line in/ Mic in/ Speaker out, IrDA, 2 x USB, 80 way Replicator socket and TV out
- PCMCIA slots (2 x Type II or 1 x Type III) The lower socket is ZV standard but both are Card Bus compatible
- Built-in Touchpad • Windows '98 keyboard
- Indicators for machine status of Battery level, Drive activity etc.
- 16 bit stereo sound with built-in mic and speakers
- Kensington Lock support • Dimensions: 230 x 297 x 48mm (WxDxH)
- Weight: 2.95 Kg

While Stocks Last

Contents:
Laptop, Manual, AC Adaptor / Charger, 1 x Battery & Driver / Utility CD

description	order code	price each
Laptop PC no operating system	SB01394	£629.00
Laptop PC with Win'98 on CD	SB01410	£715.99
Spare battery	SB01411	£70.99
Carry Case	SB01445	£20.50

Pentium® Multimedia Notebook

Hurry... Limited Stock



Lightweight and portable - suitable for use in the home, office or car. Ready to use with external CD ROM and pre-loaded with MS Windows 95 and Lotus Smartsuite.

Unit includes

- Pentium® 120 CPU • 24Mb Ram
- 810Mb Hard Drive • 8.4" TFT Colour LCD Screen • External Floppy Drive • 1Mb of Video Memory
- MS Windows 95 pre-loaded • 20 speed External PCMCIA CD ROM - mains and battery
- UK Keyboard and trackpoint Mouse • Lotus Smartsuite pre-loaded - includes: 123 (Spreadsheet), Wordpro (Wordprocessing), Approach (Database), Freelance Graphics (DTP), Organiser (Electronic Diary)
- Built-in Speakers

Contents
Notebook computer, 20 speed external PCMCIA CD ROM, AC adaptor 100/240V 50/60Hz 15Vdc @ 2.3A, 2 x Li-ion batteries - 7.2V 1200 mAH, external floppy drive. User instructions and 2 spare pointing stick rubber tops.

order code **SB00693**

While Stocks Last

ONLY £549.00

233MHz Notebook PCs



Model: SOYO PW9800

- Cyrix GXM-233 processor
- 32MB of EDO RAM, expandable to 128MB,with one free socket
- 8.2" DSTN LCD screen, 640x480 @ true colour
- Simultaneous LCD and CRT (up to 1024 x 768 depending on monitor) output
- Onboard 16 bit sound with built-in speakers and mic
- Internal Hard Drive of 2GB
- External 3.5" Floppy drive, using Parallel port
- External x24max CD ROM drive, using Ext IDE port
- LiON battery
- Windows keyboard (USA layout)
- Touchpad • PCMCIA sockets - 1 x type III or 2 x type II
- Interface/Connectors available: 1 x 9 way Serial, 1 x Parallel/Floppy, 1 x 15 way CRT, 1 x Mic in,1 x Headphone out, 2 x USB, IR port, 1 x Ext IDE/CD ROM socket
- AC adaptor: 100 - 240Vac input, 15Vdc 3.4A output

Description	Order Code	Price Each
Notebook PC no operating system, internal hard drive 2Gb	SB01427	£410.99
Notebook PC with Win'98 preloaded, internal hard drive 2Gb	SB01428	£462.45
Notebook PC no operating system, internal hard drive 3Gb	SB01470	£430.99
Notebook PC no operating system, internal hard drive 3Gb	SB01471	£482.45

Contents Notebook, Manual, AC Adaptor/Charger, Carry Case, 1 x Battery, Driver/Utility Disks

Optional Extras
Memory Upgrade (32MB-64MB) - SB01432
• Modem - **SB01239** • Battery - **SB01433**

A range of Multimedia PCs



All of the systems below are ready to run. They are supplied with:

- 3.5" floppy drive
- Win '98 pre-loaded (Win '98 supplied on CD)
- Drivers for all video/audio/motherboard/mouse supplied, booklet for motherboard
- 12 months warranty, return to base

Note: Monitor required - see CPC Catalogue

AMD 400MHz PC

- AMD K6/2 3D Now 400MHz CPU • DVD playback software • 6th generation Pioneer DVD drive
- Via AGP chipset motherboard 1 x AGP, 3 x PCI, 3 x ISA slots (AGP & 1 x PCI slot already used)
- 64MB of PC100 RAM using 1 x DIMM. Either SDRAM or EDO RAM can be used • 8.4Gb Hard Disk
- 8Mb S3 Savage AGP video card with TV out (not onboard)
- Creative Labs Soundblaster PCI 64 audio card (not onboard)
- 1 x 9 way & 1 x 25 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x KB and 1 x Mouse

order code **SB01169** — While Stocks Last — price each **£459.00**

Intel PIII 450MHz PC

- Intel PIII 450MHz CPU • 10.2GB Hard Disk • 6th generation Pioneer DVD drive
- Intel 440 BX AGP chipset motherboard 1 x AGP, 4 x PCI, 3 x ISA slots (AGP & 2 x PCI slot already used)
- 128MB of PC100 RAM. Either SDRAM or EDO RAM can be used • DVD playback software
- 16Mb Voodoo Banshee AGP video card (not onboard)
- Creative Labs Soundblaster Live Value audio card (not onboard) • 55.6K internal modem (not onboard)
- 2 x 9 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x KB and 1 x Mouse

order code **SB01171** — While Stocks Last — price each **£699.00**

Intel® Celeron™ 433MHz PC

- Intel® Celeron™ 433MHz Processor • Shuttle ME18 motherboard • 64MB of PC100 RAM using 1 x DIMM
- 4.3GB UDMA Hard Disk • 52 speed CD ROM drive • Integrated Intel® 810 video chipset
- Integrated Yamaha sound • Windows keyboard and mouse • Micro ATX case
- Case dimensions (WxHxD): 75x370x365mm

order code **SB01480** — price each **£360.00**

AMD K6/2 500MHz PC

- AMD K6/2 500MHz Processor • Shuttle 591P motherboard • 64MB of PC100 RAM using 1 x DIMM
- 8.4GB UDMA Hard Disk • 52 speed CD ROM Drive • 8MB Savage 4 graphics accelerator
- Soundblaster 128 soundcard • Windows keyboard and mouse
- Micro ATX case • Case dimensions (WxHxD): 75x370x365mm

order code **SB01477** — price each **£405.00**

Intel® Celeron™ 466MHz PC

- Intel® Celeron™ 466MHz Processor • Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM • 10.2GB UDMA Hard Disk • 52 speed CD ROM drive
- 8MB SiS 6326 AGP graphics accelerator card • Soundblaster 128 soundcard
- Windows keyboard and mouse • Micro ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code **SB01478** — price each **£415.00**

Intel® Celeron™ 500MHz PC

- Intel® Celeron™ 500MHz Processor • Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM • 13.6GB UDMA Hard Disk • 52 speed CD ROM drive
- 8MB SiS 6326 AGP graphics accelerator • Soundblaster 128 soundcard
- Windows keyboard and mouse • Micro ATX case • Case dimensions (WxHxD): 210x405x435mm

order code **SB01481** — price each **£450.00**

Intel® Pentium®III 500MHz Power PC

- Intel® Pentium®III 500MHz Processor • Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM • 20GB UDMA Hard Disk
- 52 speed CD ROM drive • 16MB Savage 4 graphics accelerator card
- Soundblaster 128 soundcard • 55.6 internal PCI modem
- Genius multimedia keyboard and mouse • ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code **SB01476** — price each **£610.00**

Intel® Pentium®III 600MHz Power PC

- Intel® Pentium®III 600MHz Processor • Shuttle VIA chipset motherboard
- 128MB of PC100 RAM using 1 x DIMM • 20GB UDMA Hard Disk • 52 speed CD ROM drive
- 32MB Savage 4 graphics accelerator card • Soundblaster 128 soundcard
- 55.6 internal PCI modem • Genius multimedia keyboard and mouse • ATX case
- Case dimensions (WxHxD): 210x405x435mm

order code **SB01479** — price each **£675.00**

AMD Athlon 600MHz PC

- AMD Athlon 600MHz Processor • Shuttle Athlon motherboard
- 128MB of PC100 RAM using 1 x DIMM • 20GB UDMA Hard Disk • 52 speed CD ROM drive
- 32MB TNT2 M64 graphics accelerator • Soundblaster 1024 Live Value soundcard
- 55.6 internal PCI modem • Genius multimedia keyboard and mouse
- ATX case • Case dimensions (WxHxD): 210x405x435mm

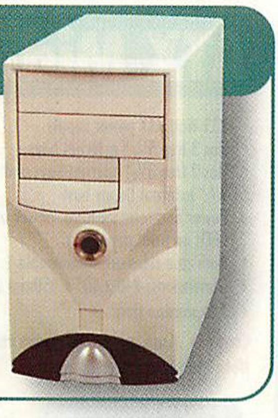
order code **SB01483** — price each **£680.00**

Intel® Pentium®III 500MHz Power PC with CD RW Writer

- Intel® Pentium®III 500MHz Processor • Shuttle VIA chipset motherboard
- 64MB of PC100 RAM using 1 x DIMM • 20GB UDMA Hard Disk • 52 speed CD ROM Drive
- 24 x 4 x 4 CD RW Writer • 16MB Savage 4 graphics accelerator card
- Soundblaster 128 soundcard • 55.6 internal PCI modem • ATX case
- Genius multi-media keyboard and mouse • Case dimensions (WxHxD): 210x405x435mm

order code **SB01482** — price each **£699.99**

AT Mini Case



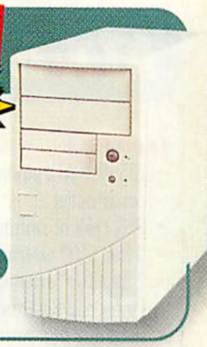
Features:
- 200 Watt AT power supply without monitor power outlet
- 2 free 5¼" external bays
- 2 free 3½" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- 8 expansion slots
- Dimensions: 180 x 340 x 430 (WxHxD)mm

Contents: case, mains lead, pack of hardware

order code **SB01455** price each **£20.50**

AT Mini Case

ONLY £20.50



- 200 Watt AT power supply with monitor power outlet
- 2 free 5.25" external bays
- 230V ac • 2 free 3½" external and 1 free internal bay
- 8 expansion slots • Power and Reset switches on front panel
- Removable top • Hard disk and power LEDs on front panel
- Dimensions: 180 x 335 x 420mm (WxHxD)

Contents Case, mains lead, pack of hardware

order code **SB01416**

AT Mini Case

ONLY £20.50



- 200 Watt AT power supply with monitor power outlet • 2 free 5¼" external bays
- 1 free 3½" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Dimensions: 180 x 335 x 430mm (WxHxD)

Contents case, mains lead, pack of hardware

order code **SB01173**

AT Mini Case

ONLY £20.50



- 200 Watt AT power supply with monitor power outlet
- 230V ac • 2 free 5¼" external bays
- 2 free 3½" external and 1 free internal bay
- Power and reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable top • 8 expansion slots
- Dimensions: 180 x 335 x 420 (WxHxD)

Contents
Case, mains lead, pack of hardware

order code **SB01418**

AT Midi Case

ONLY £23.99



- 200 Watt AT power supply with monitor power outlet
- 3 free 5¼" external bays
- 1 free 3½" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Dimensions: 180 x 380 x 430mm (WxHxD)

Contents case, mains lead, pack of hardware

order code **SB01174**

Micro Size ATX Mini Case

ONLY £23.75



- 150 Watt ATX power supply without monitor power outlet
- 4 expansion slots • 230/115V ac switchable
- Power and Reset switches on front panel
- 2 free 5¼" external bays
- 2 free 3½" external and no free internal bays
- Hard disk and power LEDs on front panel
- Removable top
- Dimensions: 175 x 365 x 355mm(WxHxD)

Contents Case, mains lead, pack of hardware

order code **SB01415**

Micro ATX Desktop Case



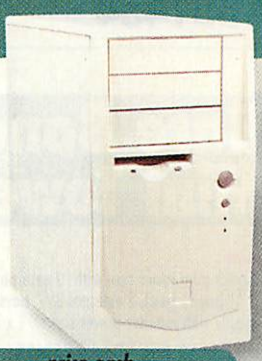
- 150 Watt ATX power supply without monitor power outlet
- 230/115V ac switchable • 2 free 5¼" external bays
- 1 free 3½" external and 1 free internal bay
- Power and reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable top • 4 expansion slots
- Dimensions: 360 x 145 x 420mm (WxHxD)mm

Contents: Case, mains lead, pack of hardware

order code **SB01429**

ONLY £25.99

ATX Midi Case



- 235 Watt ATX power supply without monitor power outlet
- 3 free 5¼" external bays
- 1 free 3½" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- Dimensions: 210 x 410 x 430mm (WxHxD)
- 8 Expansion slots

Contents case, mains lead, pack of hardware

order code **SB01175**

price each: 1-4 **£27.99** 5+ **£24.99**

ATX Midi Case



- 235 Watt ATX power supply with monitor power outlet
- 230/115V ac switchable • 3 free 5¼" external bays
- 2 free 3½" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- 7 expansion slots
- Dimensions: 210 x 405 x 435mm (WxHxD)

Contents
Case, mains lead, pack of hardware

order code **SB01417**

ONLY £27.99

ATX Midi Case

ONLY £28.85



Features
- 235 Watt ATX power supply with monitor power outlet
- 230/115V ac switchable • 3 free 5¼" external bays
- 2 free 3½" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides • 7 expansion slots
- Dimensions: 210 x 410 x 430mm (WxHxD)

Contents
Case, mains lead, pack of hardware

order code **SB01414**

ATX Midi Case



Features:
- 235 Watt ATX power supply with monitor power outlet
- 230/115V ac switchable
- 3 free $5^1/_4$" external bays
- 2 free $3^1/_2$" external and 1 free internal bay
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- 7 expansion slots
- Dimensions: 215 x 410 x 435 (WxHxD)mm

Contents: case, mains lead, pack of hardware

ONLY £29.25

order code
SB01453

ATX Midi Case



- 235 Watt ATX power supply
- Has 3 free $5^1/_4$" external bays
- Has 2 free $3^1/_2$" internal bays and 1 free $3^1/_2$" external floppy bay
- Power and reset switches, power and HDD LEDs on front panel
- Both case sides are removeable
- Dimensions: 240 x 405 x 450mm (WxHxD)
- 7 Expansion slots

Contents Case, mains lead, screws and ATX mounting plates
Note No power socket for monitor

FROM ONLY £25.99

order code	price each 1-4	price each 5+
SB00823	£30.99	£25.99

ATX Midi Case



Features:
- 235 Watt ATX power supply with monitor power outlet
- 230/115Vac switchable
- 3 free $5^1/_4$" external bays
- 2 free $3^1/_2$" external and 2 free internal bays
- Power and Reset switches on front panel
- Hard disk and power LEDs on front panel
- Removable sides
- 7 expansion slots
- Dimensions: 205 x 420 x 445 (WxHxD)mm

Contents: case, mains lead, pack of hardware

order code	price each
SB01454	£34.85

ATX Midi Case



Features:
- 3 free 5¼" external bays
- 2 free 3 ½" external and 2 free internal bays
- Power, Reset and Sleep switches on front panel
- Hard Disk activity and Power LED on front panel
- 235 Watt ATX Power supply, with outlet for powering monitor, 115/230V switchable, 50/60Hz

Contents: ATX case, Mains lead, pack of screws

Dimensions: 210x400x430mm (WxHxD)

order code	price each
SB00654	£46.35

COMPU SAFE Case 1002



Features
- Strong and comfortable handle
- Rear 3-file compartment
- Utility pouch for batteries, cables etc
- Main compartment for laptop/notebook
- Two velcro straps hold computer securely
- Long lasting metal strap fittings
- Internal organiser has storage pockets for disks, pens, business cards and calculator
- Padded pocket holds a portable printer or files
- Adjustable and removable shoulder strap with cushion pad
- Dimensions (HxWxD) 300x400x200mm

order code	price each 1-2	price each 3+
CH08893	£39.45	£36.65

Bare Bones Pentium AT Mini Tower

While Stocks Last



Features
- Stylish mini tower case with: 2 external $5^1/_4$" bays (2 free), 1 internal $3^1/_2$" bay (1 free), 2 external $3^1/_2$" bays (1 free), AT200W power supply with monitor power socket, 1 x $3^1/_2$" floppy, motherboard

Motherboard: PowerBoard P586TX
- Socket 7 supporting the following CPUs: Intel Pentium 90-233MHz, Intel MMX 166-233MHz AMD K5 PR90 - PR166, K6 PR200 - PR233, Cyrix 6x86 PR133+ - PR200+ • Clock speed from 55-75MHz
- CPU voltages from 2.1V to 3.52V • Intel 430TX chipset
- 512Kb onboard Burst/Pipeline cache • Award PnP BIOS
- 4 x PCI, 3 x ISA slots
- 2 x DIMM (3.3V unbuffered) and 4 SIMM sockets supporting up to 256Mb either SDRAM/EDO or FPM RAM can be used • Supports 2 HDD interfaces to Mode 4, UDMA33 compatible
- 1 x 9 and 1 x 25 way serial ports, 1 x parallel port, 1 x AT keyboard

Dimensions: 410x180x340mm (DxWxH)

Contents
Driver for motherboard, booklet for motherboard, keys, HDD and FDD cable and set of screws

Note *There is no CPU, memory or video card supplied*
Mains lead not supplied
(order code SB01148 black, 2m IEC to 13A)

order code
SB01308

price each 1-2	price each 3+
£45.00	£39.00

Case '1000' COMPU SAFE



- Exterior padded pocket • Internal organiser with storage pockets
- 180° opening in main compartment for easy access to laptop/notebook.
- Two velcro straps to hold computer securely • Rear compartment
- Strong and comfortable handle
- Dimensions (HxWxD) 300 x 400 x 110mm
- Adjustable and removable shoulder strap with cushion pad and metal fixings

CONTENTS NOT INCLUDED

order code	price each 1-2	price each 3+
CH08891	£24.23	£22.91

PROVIEW 14" SVGA Monitor

FROM ONLY £72.99

Model: Proview PX-456

Features:
- 14" CRT (13.18" viewable) 0.28mm dot pitch
- Digital Controls via OSD (On Screen Display) for adjustment of: Size,Geometry, Bri/Contrast
- Horizontal Frequency: 30 - 54KHz
- Vertical Frequency: 50 - 120Hz
- Maximum Resolution: 1024 x 768
- Built-in microphone
- VESA, DPMS, LR, EPA, TCO 95 compatible
- Power: 100 - 240Vac 50/60Hz, 80 Watts
- Dimensions: (LxWxH) 384 x 359 x 371mm
- Weight: 11.0Kg



Note: the optional speakers in the user guide are not available from CPC.

Contents: monitor, user guide, mic lead & mains lead (to either 13A)

While Stocks Last

order code	price each 1-9	10+
SB01446	£75.99	£72.99

15" Digital Monitor



FROM ONLY £84.99

Model: Hyundai S560

Features:
- 15" CRT (13.7" viewable), 0.28mm Dot pitch
- OSD, Digital Controls for adjustment of - brightness, contrast, H/V size & position, trapezoid etc.
- Horizontal Frequency: 30 - 57KHz.
- Vertical Frequency: 45 - 130Hz.
- Resolution: 640 x 480 @ 85Hz up to 1280 x 1024 @ 60Hz
- MPR II, VESA, DPMS • Power: 90 - 264Vac, 90 Watts
- Dimensions: WxHxD - 365 x 370 x 386mm • Weight: 11.5Kg

Contents: Monitor, user guide & mains lead

order code	price each 1-2	3+
SB01461	£89.00	£84.99

TATUNG C5B 15" Digital Monitor

- 15" FST (13.7" visible) 279x210mm display area
- 0.28mm dot pitch
- Flat screen for better picture quality and less reflection
- 4 year on-site warranty
- Anti-glare tube with antistatic coating
- DDC ½ B PnP for simple installation and configuration



4 Year on-site Warranty

Technical Data

Screen Size	15" FST (13.7" visible)
Display Area	279x210mm
CRT Dot Pitch	0.28mm
Scan Rate	30-70kHz
Refresh Rate	50-120Hz
Properties	Anti-glare, antistatic, anti-reflection coating
User Controls	Contrast, Brightness, Size, Position, Pincushion, Trapezoid, Tilt
Max. Resolution	1024x768 NI 85Hz flicker-free
Features	Multi-sync, auto-sizing, full-scan, VESA power saving, DDC1/2B PnP, self-test pattern, universal power supply
Control System	Digital, with LED indicator or OSD
Low Radiation	MPRII
Power	240V ac
Dimensions	368x398x405mm (WxHxD)

order code	price each 1-2	3+
CH48694	£119.99	£117.99

17" Digital Monitor



Model: Hyundai S770

Features:
- 17" CRT (16" viewable), 0.27mm Dot pitch
- OSD with adjustment of - brightness, contrast, H/V size & position, trapezoid, zoom, parallelogram, corner pin, rotation, moiré, colour temperature, degauss
- Has controls on front for OSD, recall, power and zoom
- Horizontal Frequency: 30 - 70KHz.
- Vertical Frequency: 50 - 130Hz.
- Resolution: 640 x 480 @ up to 120Hz up to 1024 x 768 @ up to 85Hz
- TCO'92, VESA, DPMS, PnP • Power: 100 - 240Vac, 90 Watts
- Dimensions: WxHxD - 416 x 416 x 447mm • Weight: 16Kg

FROM ONLY £119.99

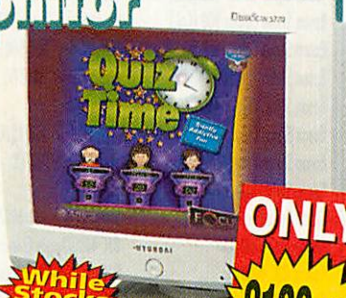
Contents: monitor, user guide
For mains lead use SB01148

order code	price each 1-2	3+
SB01462	£124.99	£119.99

17" Digital Monitor

Model Hyundai DeluxScan 7770

Features
- 17" CRT (16" viewable), 0.27mm Dot pitch
- OSD (5 languages) Digital Controls for adjustment of - brightness, contrast, H/V size & position, trapezoid, zoom, parallelogram, moiré, degauss, rotation, recall, preset & colour temperature
- Horizontal Frequency: 30 - 70KHz
- Vertical Frequency: 50 - 150Hz • Weight: 16Kg
- Resolution: 640 x 480 @ 120Hz up to 1280 x 1024 @ 60Hz
- MPR II, VESA, DPMS • Power: 90 - 240VAC, 90 Watts
- Dimensions: WxHxD - 416 x 416 x 447mm



While Stocks Last

ONLY £139.99

Note The optional speakers are not available from CPC

Contents Monitor, user guide & mains lead

order code
SB01157

TATUNG C7T 17" Digital Monitor

A multi-frequency monitor which automatically adjusts its vertical and horizontal scanning frequencies to those of the host computer. The unit provides true colours, a high contrast range, vivid images and sharp text over the entire display area with accurate geometry adjustments.

- 0.28mm dot pitch • Full scan capability
- 17" (15.9" visible) flat-square colour monitor with excellent front of screen performance
- High resolution with high-refresh rate up to 1280x1024 at 60Hz
- All functions can be conveniently controlled by On Screen Display
- DDC ½ B PnP for simplified installation and configuration



4 Year on-site Warranty

INFO *For full technical data, see CS03810 on page 412 of CPC's Catalogue.*

order code	price each 1-2	3+
CH48695	£186.65	£183.99

PROVIEW 19" SVGA Monitor

Model: Proview PK-998.

Features
- 19" CRT (17.9" viewable) dot pitch is 0.26mm
- Digital Controls via OSD (On Screen Display) for adjustment of -Size, Geometry, Colour temp (9300K or 6550K), Bri/Contrast.
- Horizontal Frequency: 30 - 98KHz.
- Vertical Frequency: 50 - 150Hz.
- Maximum Resolution: 1600 x 1200.
- Built-in microphone with output socket on rear.
- VESA, DPMS, LR, EPA, TCO 95 compatible.
- Power: 100 - 240Vac 50/60Hz, 150 Watts.
- Dimensions: LxWxH - 455 x 446 x 452mm.
- Weight: 19.6Kg.

Note the optional speakers in the user guide are not available from CPC.

Contents monitor, user guide & mains lead (to either 13A or IEC320 plug).



ONLY £275.99

order code
SB00812

KENSINGTON Slimscreen Filters

- Patented slimscreen thin film which has the same anti-radiation and anti-reflective properties as glass filters, but due to its flexibility it can be shaped to fit your monitor, sealing it on. When installed it looks like part of the monitor.
- Anti-static
- Eliminates up to 99% of reflection and radiation
- Simple to install with sticky velcro pads



order code	size	price each 1-4	5+
CH74768	14-15"	£26.28	£24.40
CH74769	16-17"	£41.51	£38.54
CH74770	19-21"	£62.28	£57.83

15-Way High Density Video Switch



A simple method of switching one computer between two monitors or to share one monitor between two computers.

Technical Data
Connections DB15 female

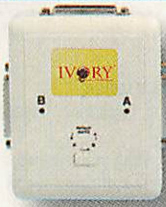
For lead, see CPC code CSLEAD146

order code	1-9 price each	10+
CH01490	£8.08	£7.59

Wall Mountable Parallel Switch Boxes

While Stocks Last

Model 211P
order code **SB01316**
price each **£4.99**



Model 411P
order code **SB01319**
price each **£7.99**



SB01316 - to connect 2 PCs to 1 printer. Dims: 105x95x30mm (DxWxH)

SB01319- to connect 4 PCs to 1 printer. Dims: 175x120x30mm (DxWxH)

These switch boxes operate on a "first come, first served" auto-switching function, no software required. They can also be switched manually via a switch on the unit. Time out period is set at 6 seconds. All connectors are 25-way female, lead to PC is therefore 25-way M-M (CPC code CSLEAD104). Supplied in retail boxes, with mounting screws and template.

4 to 1 Keyboard, Monitor, Mouse Switch

Combined keyboard, monitor and mouse switch which allows the user to switch between different PCs.
- A transparent boot-up facility enables the simultaneous start-up of all CPUs attached to the commander
- Incorporates dedicated microprocessors for controlling individual channel operation
- Supports both PS/2 and serial mice
- Supports a full range of monitors, including: MONO, EGA, VGA, SVGA, XVGA and VESA
- Built-in buzzer to confirm switching • Scan mode enables automatic switching between CPUs
- Manual (front button) or keyboard (hot key) controlled switching mechanism
- Enables daisy chaining for controlling multiple CPUs (2-64)



INFO
For full technical data see CS02709 on page 389 of CPC's Catalogue

order code	1-4 price each	5+
CH39721	£251.99	£247.99

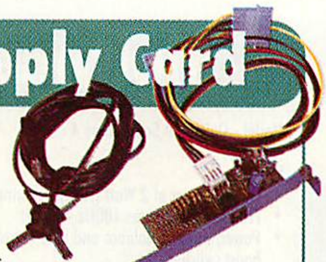
JR INKJET Compatible Inkjet Cartridges



A range of compatible inkjet cartridges, manufactured to exacting standards to ensure first rate performance. The cartridges are listed to show compatibility and the equivalent OEM part number. In the table below Blk and Col indicate Black and Colour cartridges, respectively.

Compatible Cartridge for:	Compatible to:	oem part no	order code	1-4 price each	5+
Epson Stylus Colour Blk	Stylus Colour/Pro/Pro XL	S020034	CH39624	£3.85	£3.40
Epson Stylus Colour Col	Stylus Colour/Pro/Pro XL	S020036	CH39625	£6.66	£5.88
Epson Stylus Colour II Blk	Stylus 820/200 Colour II/Colour IIs/200	S020047	CH39627	£3.85	£3.40
Epson Stylus Colour II Col	Stylus 820/1500 Colour II/Colour IIs	S020049	CH39630	£6.66	£5.88
Epson Stylus Colour 300	Stylus 300	S020138	CH63370	£6.91	£6.13
Epson Stylus Colour 440/640/Photo 750Blk	Stylus 440/460	S020187	CH63374	£3.85	£3.40
Epson Stylus Colour 750 (Col.)	Epson Stylus Photo 750	S020193	CH68888	£7.13	£6.53
Epson Stylus Colour 900 (Blk.)	Epson Stylus Photo 900	T003011	CH68889	£3.97	£3.64
Epson Stylus Colour 900 (Col.)	Epson Stylus Photo 900	T005011	CH68890	£7.13	£6.53
Epson Stylus Colour 400 Blk	Stylus Colour 400/500/600/Photo	S020093	CH39631	£3.85	£3.40
Epson Stylus 200/500 Col	Stylus Colour 200/500	S020097	CH39632	£6.66	£5.88
Epson Stylus Colour 440/640/740 Col	Stylus 740	S020191	CH63372	£6.66	£5.88
Epson Stylus Colour 800 Blk	Stylus Colour 800/1520	S020108	CH39633	£3.85	£3.40
Epson Stylus Photo/700/EX Col	Stylus Photo/700/EX	S020110	CH63371	£6.91	£6.13
Epson Stylus Colour 740 Blk	Stylus 740	S020189	CH63373	£3.85	£3.40
Epson Stylus Colour 400	Stylus Colour 400/600/800/1520	S020089	CH39634	£6.66	£5.88
Canon BJC 4000 Blk	BJC 4000/Apple Colour Styl 2400	BCI-21 BLK	CH39638	£2.57	£2.27
Canon BJC 4000 Clr	BJC 4000/Apple Colour Styl 2400	BCI-21 C	CH39639	£3.85	£3.40
Canon BJC 600 (Cyan)	BJC 600/Apple Colour Styl/Pro	BJI-201 C	CH39647	£1.70	£1.49
Canon BJC 600 (Magenta)	BJC 600/Apple Colour Styl/Pro	BJI-201 M	CH39648	£1.70	£1.49
Canon BJC 600 (Yellow)	BJC 600/Apple Colour Styl/Pro	BJI-201 Y	CH39649	£1.70	£1.49
Canon BJC 600 High Capacity Blk	BJC 600/600e/Apple Colour Styl/Pro	BJI-201 HC	CH39650	£2.00	£1.81

PC Power Supply Card

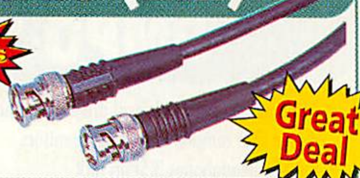


- Universal power supply for peripherals like loudspeakers, modems, scanners, external drives, etc
- Maximum output current 2.2A
- Polarity switchable
- Power saving. Peripherals are automatically switched off with the PC
- Selectable output voltage 3, 4.5, 5, 6, 7.5, 9 and 12V dc
- Multi-outlet power cable, 2 jacks 2.5 and 3.5mm, 2 DC plugs 2.1 x 5 and 2.5 x 5.5mm
- Connected to PC power supply
- Includes internal power cable
- Dimensions 167 x 80 x 37mm

order code	price each 1-4	5+
CH09802	£6.74	£6.09

BNC Patch Leads (2m)

While Stocks Last



Great Deal

- BNC plug at each end
- 2m in length
- RG-62 cable
- Strain reliefs fitted on each connector
- Suitable for use in datacommunications applications

order code	price each 1-9	10+
SB00508	£1.55	£1.39

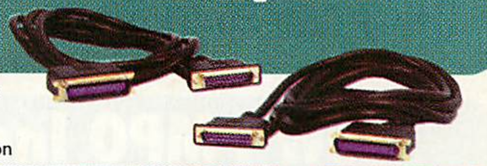
PC External Data Leads



A range of cables connected 1-1 for use as extensions, patch leads or for connecting equipment to switch boxes

order code	description	length	1-9 price each	10+
CH48349	9 way D plug to 9 way D socket	5m	£6.92	£6.43
CH10374	15 way high density plug to socket	5m	£7.98	£7.18

Gold Plated Computer Leads



- Gold plated connectors with black leads
- Double Shielded Cable
- Thumb screw connection

description	order code	1-9 price each	10+
1.8m AT Keyboard Extension Lead (M/F)	CH63255	£1.16	£1.05
1.8m PS/2 Keyboard Extension Lead (M/F)	CH63256	£1.76	£1.60
3m Serial Laplink Cable Dual Ended	CH63257	£4.78	£4.35
3m Parallel Laplink Cable	CH63258	£3.52	£3.20
1.8m CGA Monitor Extension Lead (M/F)	CH63262	£2.34	£2.13
1.8m VGA Monitor Extension Lead (M/F)	CH63263	£2.82	£2.56
2m Parallel Printer Cable	CH63276	£2.80	£2.55
3m Parallel Printer Cable	CH63277	£4.70	£4.27
2m D25 M/M Straight Through Lead	CH63282	£3.12	£2.84
3m D25 M/M Straight Through Lead	CH63285	£4.10	£3.73

Amstrad/IBM-Compatible VGA Extension Lead



Make/Model/Extension

Amstrad PC2000 Series Monitor, IBM PC/XT or PC/AT with VGA Card PS/1 or PS/2 Monitor (signals) Length: 2 metres

Cable Type: 15-way Hi-'D' plug to socket

order code	price each 1-9	10+
CH01664	£2.80	£2.42

IEC Mains Leads



While Stocks Last

10A IEC mains leads of varying lengths.

order code	length	connectors	1-4 price each	5+
SB01148	2m	Black IEC to 13A	£1.25	£1.10
SB01151	3.5m	Black IEC (right angle) to bare end	69p	59p
SB01147	3.5m	Grey IEC to bare end	69p	59p

PC Printer Leads



25-way 'D' plug to 36-way. Centronics interface leads. Computer to printer with parallel centronics interface.

Leads may not be supplied with thumbscrews as pictured

order code	length	price each 1-9	10+
CH01343	5m	£4.19	£4.17
CH01342	3m	£2.90	£2.30

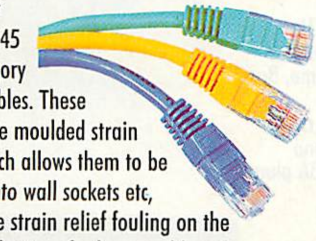
Bi-Tronic/IEEE-1284 Parallel Printer Cables



Parallel printer cables compliant with IEEE-1284, Bi-tronic standard. Available in three different lengths with 25-way D plug (male) to 36-way Centronics plug (male).

order code	price each 1-4	5+
CH39717	£3.39	£3.21
CH39718	£4.99	£4.75
CH39719	£7.51	£7.15

Cat 5 RJ45 Low Profile Patch Cables



A range of RJ45 to RJ45 UTP, Category 5 patch cables. These cables have moulded strain reliefs which allows them to be plugged into wall sockets etc, without the strain relief fouling on the plate. A selection of colours and lengths are available.

LENGTH	BLUE	GREEN	GREY	RED	YELLOW	1-4 PRICE EACH	5+
0.5m	CH39651	CH39662	CH39673	CH39686	CH39723	96p	87p
1m	CH39652	CH39663	CH39675	CH39687	CH39698	£1.14	£1.01
2m	CH39653	CH39664	CH39676	CH39688	CH39699	£1.50	£1.31
3m	CH39654	CH39665	CH39678	CH39689	CH39700	£1.82	£1.59
4m	CH39655	CH39666	CH39679	CH39690	CH39701	£2.18	£1.90
5m	CH39656	CH39667	CH39680	CH39691	CH39702	£2.52	£2.19
6m	CH39657	CH39668	CH39681	CH39692	CH39703	£2.96	£2.62
7m	CH39658	CH39669	CH39682	CH39693	CH39704	£3.28	£2.91
10m	CH39659	CH39670	CH39683	CH39694	CH39705	£4.41	£3.84
15m	CH39660	CH39671	CH39684	CH39695	CH39706	£6.38	£5.55
20m	CH39661	CH39672	CH39685	CH39696	CH39707	£8.60	£7.48

MAXXTRO Active 50W PMPO Speakers



- Compact speakers with oval drive units and a slim design that complements most monitors
- Built-in headphones 3.5mm jack
- 2 x 3.5" full range drivers
- Power and volume controls
- 50W PMPO, 120 - 15KHz frequency response
- Each speaker measures 185x75x121mm (HxWxD)

order code	price/pair 1-9	10+
CH43420	£5.51	£5.08

30W PMPO Indiana Speakers (non-amplified)



Technical Data

FUJITSU

- 30W PMPO • 4 Ohms

Dimensions (HxWxD): 215x90x140mm
Weight: 690g per speaker (approx)

Note Magnetically shielded, quality, slim-line speakers, with 3.5" stereo jack plug and 3m lead.

ONLY £5.15 PER PAIR

CD not included.

order code
SB00551

60W PMPO Indiana Speakers (non-amplified)



Technical Data

FUJITSU

- 60W PMPO
- 4 Ohms

Dimensions (HxWxD): 225x147x160mm (cabinet)
Bass Speaker Diameter: 100mm
Weight: 1.5kg per speaker (approx)
Includes lead (bare ends to DC plug)

ONLY £8.25 PER PAIR

CD not included.

Note This is a solidly constructed, quality, magnetically shielded bass reflex unit, with tweeter. Terminals are sprung type.

order code
SB00550

240W PMPO Speaker System



Model Nicole SD983

Technical Data

Frequency Response	50Hz to 20KHz
Controls	On/Off/Volume, Bass, Treble
Dimensions - WxHxD	13.5 x 19.5 x 17cm
Input	via RCA phono
Power	Mains via IEC320 'T' adaptor

order code	price/pair 1-2	3+
SB01389	£12.99	£11.99

Multimedia Speakers



Model : Quickshot Soundmate 4

Features:
- Output power of 2 Watt (RMS) / channel
- Frequency response: 100Hz - 14KHz
- Power, volume, balance and bass & treble boost switches
- Powered by 4 x 'C' batteries or 6Vdc adaptor (not included)
- Dimensions: 100x160x105 (WxHxD)

While Stocks Last

order code
SB01401

ONLY £1.95 per pair

Passive 4W RMS Speakers



Low cost passive computer speakers (pair) ideal for system builders. Each speaker is rated at 2W RMS (total 4W) up to 16W peak each. The units are magnetically shielded.

INFO For full technical data, see CS00440 on page 353 of CPC's catalogue

order code	price/pair 1-4	5+
CH01605	£3.13	£2.86

Active 100W PMPO Speakers



Powerful speakers in a compact design.
- 100W PMPO • 3" full-range drivers
- Magnetically shielded • LED power indicator
- Air woofer design enhances sound • Low distortion
- Supplied with all leads, power adaptor and instructions

Technical Data

Power (PMPO)	100W total
Frequency Response	70 - 18kHz
Controls	Power, volume, tone
Input Connection	via 3.5mm stereo jack
Power	via mains adaptor supplied
Dimensions	93x188x115mm

order code
CH09736

price/pair 1-4	5+
£14.07	£12.13

520W PMPO Speaker System



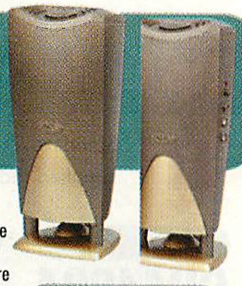
Model Nicole SD638s
- 3D effect switchable from front panel
- Ported cabinet
- Line out available on rear

Technical Data

Frequency Response	40Hz to 20KHz
Speaker Unit	3" and Tweeter
Controls	On/Off/Volume, Bass, Treble
Dimensions - WxHxD	16 x 25 x 21cm
Input	via RCA phono
Power	Mains via 13A plug

order code	price/pair 1-2	3+
SB01387	£27.80	£25.75

580W PMPO Speaker System



Model Nicole SD9922

A stylish 'Art Deco' speaker system which has been designed to provide '360°' sound by having downward pointing speaker units to disperse the sound. A microphone input and headphone output (all 3.5mm) are available.

Technical Data

Frequency Response	20Hz to 20KHz
Controls	On/Off, Volume, Bass, Treble
Dimensions - WxHxD	14 x 33 x 15cm
Input	via 3.5mm stereo jack plug
Power	Mains 240V via 13A plug

order code **SB01375**

price/pair **£61.99**

480W PMPO Subwoofer Speaker System



Model Nicole SD522

A subwoofer speaker system with a built-in '3D' effect function which is switchable from the front panel. The speaker grilles on the satellite speakers are removable.

Technical Data	Satellite	Subwoofer
Frequency Response	20Hz to 20KHz	
Drive Unit	Tweeter + 2¾"	4"
Controls	On/Off, Volume, Bass, Treble	-
Dimensions - WxHxD	11 x 17 x 17cm	17 x 25 x 28cm
Input	via 3.5mm stereo jack plug	-
Power	Mains 240V via 13A plug	-

order code **SB01386**

1-2 price each 3+ **£35.99 £33.99**

Internal Micro Speaker 60W PMPO



Powerful mini amplifier and speakers with subwoofer which is designed to fit inside the PC case. Only for use on systems that already have a soundcard installed.

- High efficiency stereo amplifier and speakers
- PMPO 60W micro-speaker
- 4" subwoofer included
- Built-in two high density Gauss magnet speakers
- Fits exactly into 5.25" bays
- Can be angled 15 degrees left or right
- Front panel volume control, loudness on/off and headphone jack
- Power indicator LED
- Supplied with mounting bracket for speaker cable to audio card and screws

Technical Data

Dimensions (HxWxD)	41x146x154mm
Input Connection	3.5mm stereo jack on fly lead
Power Connection	Standard PC IDE power connection with pass-through
Output Connection	3.5mm stereo jack socket (headphones)

order code **CH09759**

1-4 price each 5+ **£13.45 £12.80**

650W PMPO Subwoofer Speaker System



The speakers are of a cylindrical design making a pleasant change to the more usual 'rectangular' boxes as in most other systems. The AC power is obtained via a 'T' tap from the back of the PC's IEC320 power cable, meaning that a separate 13A plug is not required.

Technical Data	Satellite	Subwoofer
Output - RMS	10 Watts	15 Watts
Freq. response	150Hz to 20KHz	40Hz to 200Hz
Drive Unit	3"	5"
Controls	On/Off, Volume, Bass, 3D	-
Dims - WxHxD	11 x 29 x 11cm	20 x 29 x 22cm
Input	via 3.5mm stereo jack plug	-
Power	Mains 240V via 'T' lead	-

order code **SB00817**

1-4 price each 5+ **£40.99 £35.99**

480W PMPO Subwoofer Speaker System



Add those 'deep' sounds to your games or portable audio with this subwoofer system. The AC power is obtained via a 'T' tap from the back of the PC's IEC320 power cable, meaning that a separate 13A plug is not required.

Technical Data	Satellite	Subwoofer
Output - RMS	6 Watts	10 Watts
Frequency response	200Hz to 20KHz	80Hz to 200Hz
Drive Unit	3"	4"
Controls	On/Off, Volume, Bass	-
Dimensions - WxHxD	10 x 19 x 10cm	17 x 25 x 22cm
Input	via 3.5mm stereo jack plug	-
Power	Mains 240V via 'T' lead	-

order code **SB00818**

price each **£28.99**

580W PMPO Subwoofer Speaker System



Model Nicole SD360 + SD992

A subwoofer speaker system which has been designed to provide '360°' sound by both the satellite and subwoofer having downward pointing speaker units to disperse the sound. This has also allowed the speakers to look rather different than most others in the marketplace. Two microphone inputs are available as well as a headphone output (all 3.5mm)

Technical Data	Satellite	Subwoofer
Frequency Response	20Hz to 20KHz	
Drive Unit	3"	4"
Controls	On/Off, Volume, Bass, Treble	-
Dimensions	14.5 (dia) x 11cm	18 (dia) x 29cm
Input	via 3.5mm stereo jack plug	-
Power	Mains 240V via 13A plug	-

order code **SB01385**

1-2 price each 3+ **£61.99 £58.65**

3.5" Drive Head Cleaning Kit



Simply apply approx. 5 drops of cleaning fluid and insert into drive for 10-15 seconds.

order code	price each 1-9	10+
CH01045	£1.13	£1.04

Zip Disk



iomega

Standard Zip disk (100MB) supplied individually.

order code	price each 1-3	4+
CH44804	£7.75	£7.42

CD-ROM Lens Cleaner



A CD-ROM laser lens cleaning disk. The CD is simply inserted into the drive and a program (for DOS, Win3.1/95) is run whilst the lens is cleaned.

order code	price each 1-4	5+
CH09930	£2.23	£2.08

CD-Recordable (CD-R)

Incredible Value



Blank CD-R disks - supplied by a leading manufacturer. The disks are supplied in jewel cases, and have 650Mb (74 min) capacity. Supplied individually. **Note** Colour may vary

order code	price each 1-4	5+
CH35117	99p	90p

Multimedia PC Cleaning Kit

FROM ONLY £7.45



Contents

- 3.5" disk drive head cleaning disk
- CD-ROM laser lens cleaner
- 5 x foam swabs
- CD-ROM cleaning cloth
- 12ml head cleaning fluid
- Lint free cloths x 15
- 20ml pump spray - computer, CD cleaning solution
- Mini keyboard/case vacuum cleaner with accessories (requires 4 x AA, not supplied)

Supplied in a tough plastic carry case

order code	price each 1-4	5+
CH09927	£8.14	£7.45

TDK CD-R



Recordable compact disk by TDK. 74 minutes with a capacity of 650Mb. Supplied in a jewel case. Disk is pre-printed with an area for labelling.

order code
CH09233

ONLY £1.43

Dysan CD-R



Blank CD-Recordable discs by Dysan which offer the popular gold write once CD format. Can be read in any CD-ROM drive.

- 650Mb (74 min) capacity
- Supplied in jewel case

Note Colour may vary

Great Price

order code	price each 1-4	5+
CH35116	87p	80p

10 Pack Formatted HD Disks



- 3.5" double side - high density.
- DOS formatted to 1.44MB
- 100% certified and tested
- 100% virus free
- Supplied in a card box with label

order code	price/pack (10) 1-4	5+
CH09884	£1.95	£1.80

FROM ONLY £1.80

CD-R 80min



- Blank CD-R disks
- 700Mb (80min) capacity
- Blank Silver/Blue media
- Supplied in jewel case

FROM ONLY 89p

order code	price each 1-9	10-99	100+
SB01243	£1.25	99p	89p

2Mb Unformatted Floppy Disks

While Stocks Last

Grade 'A' Floppy Disks - pack of 50

order code
SB00611

ONLY £3.99 per pack of 50



CD-R Disks

FROM ONLY 63p per disk



Silver/blue CD-R disks branded 'Vertex' and supplied in individual jewel cases. They are available in either 74 or 80 minute versions, both types in retail **packs of 10.**

order code	description	price/pack 1-19	20+
SB01379	CD-R 74 minute/650Mb	£6.99	£6.30
SB01380	CD-R 80 minute/703Mb	£7.59	£6.99

FROM ONLY **55p per disk**

CD-R/RW (Unbranded) Media



- 650Mb (74min) or 700MB (80min) discs
- CD-R guaranteed x8 speed, CD-RW guaranteed x4 speed
- Blank Silver/Blue Media (except white printable disks)
- Supplied in either a jewel case or on a spindle

description	quantity	order code	price/pack 1-4	5+
CD-R				
74 min Jewel Case	1	CH54527	69p	67p
74 min Jewel Case	10	CH73007	£6.80	£6.60
74 min White Printable	1	CH73008	93p	90p
74 min White Printable	10	CH73009	£8.99	£8.72
74 min Spindle	50	CH66557	£29.99	£27.50
80 min Jewel Case	1	CH54529	80p	78p
80 min Jewel Case	10	CH73010	£7.50	£7.28
80 min Spindle	50	CH66558	£34.00	£32.98
CD-RW				
74 min Jewel Case	1	CH54531	£2.19	£2.12
74 min Jewel Case	10	CH73011	£21.00	£20.37

Excellent Value

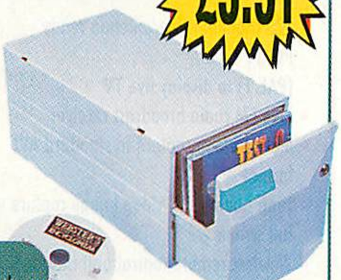
CD-ROM Drawer

FROM ONLY **£5.51**

CD Rom Drawer with a capacity of 20CDs. Drawers interlock to allow stacking. Each drawer is lockable and is supplied with two keys.

Technical Data

- Dimensions (LxWxH) 325 x 170 x 151mm



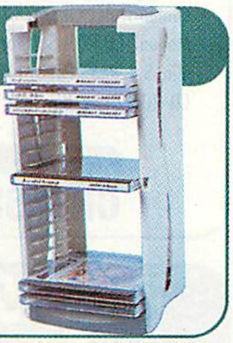
order code	price each 1-9	10+
CH01587	**£5.63**	**£5.51**

CD Tower

Each tower can store up to 20 CD ROMs or audio CDs in their jewel cases. Made from durable plastic, towers can be stacked vertically or horizontally, as required. Can be desk or wall mounted.

Technical Data

Dimensions (LxWxH) 120x140x314mm



order code	price each 1-4	5+
CH09721	**£2.75**	**£2.50**

Screw-On Lock Kit

CARE-FREE SECURITY KITS™

A theft deterrent kit for computers and office equipment with case or lid screws. This bracket is fixed to the casing by the Super Bond adhesive. A 2m, coated steel cable threads through the brackets and is secured to a desk (or permanent feature of the building) by a padlock and "keyhole" bracket.



INFO For full technical data see CS00004 on page 489 of CPC's Catalogue

order code	price each 1-4	5+
CH00829	**£11.70**	**£9.65**

Super Bond Lock Kit

CARE-FREE SECURITY KITS™

A heavy duty kit designed to secure computers, peripherals and other office equipment.

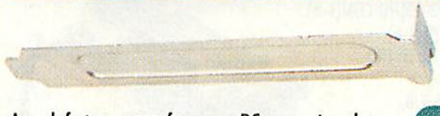
Contents: 1.5m cable, 3 x metal plates, 40mm padlock with 2 keys, "keyhole" bracket and Super Bond adhesive.

FROM ONLY **£11.99**



order code	price each 1-4	5+
CH00828	**£13.73**	**£11.99**

PC Expansion Slot Covers



A pack fo two covers for spare PC expansion slots. Dimevsions 120 x 19mm

order code	price/pack 1-24	25+
CH00910	**71p**	**61p**

Lock Slot Kit

CARE-FREE SECURITY KITS™

A security kit designed specifically for PC/XT/AT/PS2 and compatibles. The system uses a vacant expansion slot to provide the strongest security possible. The kit contains a Lock Slot™, which is fitted in place of the original blank slot, and a metal plate is fixed to the monitor by Super Bond adhesive. A coated steel cable is then threaded through both of these and secured by a padlock to a desk or permanent feature of the building. Due to the ingenious design of the locking system, neither end of the cable can then be removed until the padlock is unlocked.



Contents: 2m cable, Lock Slot™, metal plate, 40mm padlock with 2 keys, "keyhole" bracket and Super Bond adhesive

order code	price each 1-4	5+
CH00907	**£14.61**	**£14.24**

Year 2000 RTC Card

Model: Millennium YKIK-RTC/M2000



Features

- Onboard Y2K compliant Dallas Real Time clock with 10 year battery life
- Onboard Firmware resolves all YK2 related BIOS problems
- NSTL, CE, FCC certified and Microsoft accredited
- Compatible with all PCs using Intel CPUs from 286 onwards
- Compatible with all operating systems
- Corrects HP Vectra & Award V4.5 BIOS problems
- Ensures correct rollover with the PC switched on or off
- Onboard or front panel LED indication of correct operation
- Requires free 8 bit ISA slot

Note

This card will fix all relevant Y2K hardware problems, it will not fix non-compliant software.

order code	price each 1-4	5+
SB00825	**£57.00**	**£55.99**

ISA/PCI POST Diagnostic Cards



POST (Power-On Self Test) routines are performed by a PC's BIOS each time the machine is switched on. Most errors caused by system components can be detected at this stage. The card (PCI or ISA version) is simply inserted into a spare slot and the POST code is displayed as the machine boots up. At the point where the error occurs, the displayed code can be checked to see what the fault is. The cards are supplied with manuals which list the POST codes for most of the popular BIOS manufacturers.
Alternatively, most motherboard manufacturers list POST code information in the board's manual or on their website.

order code	card type	1-4 price each	5+
CH43088	PCI	£24.49	£22.45
CH43090	ISA	£18.45	£16.99

Multi Capture Card



- PCI single chip video capture card
- Supports NTSC/PAL/PAL M/PAL N/SCAM video formats
- Image resolutions up to 768x576 (PAL), 640x480 (NTSC)
- No VGA feature connector and video frame buffer required
- Supports 4 video composite input connectors Software supplied: a) New Soft Video Works V4. 1 for Video Capture and non-linear Video Editing b) PC Security for Surveillance c) Iphone 5 demo version for Video Conference
- Supports Windows 95/98
- Contents: Capture Card, CD-ROM software

order code	1-4 price each	5+
CH65158	£39.74	£36.13

ISA 2 x Serial, 1 x Parallel I/O Card



- 2 x hi-speed UART with FIFO/Hi-IRQ(3-15)/Hi-COM(1-8)
- 1 x SPP with FIFO/Hi-IRQ(3-15)/Hi LPT(1-6)
- RS232: 2 x ST-16C552 UARTs supporting Hi-IRQ and Hi-I/O address
- UART1: I/O address COM/1/2/3/4/5/6/7/8, IRQ location 3/4/5/7/8/10/11/12/15
- UART 2: as 1
- Printer port: 1 x SPP, bi-directional with FIFO ST-78C34/36, supports Hi-IRQ and Hi-I/O address
- Print Port1: I/O address LPT1/2/3/4/5/6, IRQ location 3/4/5/7/9/10/11/12/15

order code	1-4 price each	5+
CH36590	£20.25	£18.55

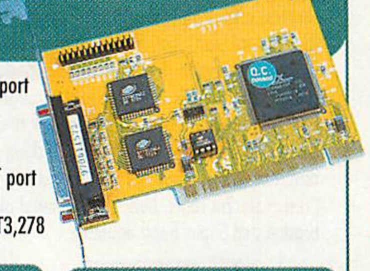
TV Tuner, FM Radio and Video Capture Card



- 125 channel cable/antenna ready PCI TV tuner (PAL 1) to display live TV
- Live FM radio broadcast receiver
- Motion video capture in standard AVI format
- High quality still video image capture up to full screen
- Wireless remote control unit included
- 16 channel simultaneous surf feature
- Sizeable and scaleable video window up to full screen
- AV and S-Video inputs for external video sources
- Video conference ready with MS Netmeeting (included)
- Contents: PCI Tuner Card, Audio Cable, FM Antenna, Remote Control, Installation Manual, CD ROM Software (Includes: Flyvideo 98, VideoLive Mail, MS Netmeeting)
- Min. Sys. Req.: P133, 16MB RAM, 10MB HDD, Soundblaster Compatible Soundcard, CD-ROM Drive, Windows 95/98, NT4, web TV

order code	1-4 price each	5+
CH75581	£53.85	£50.00

PCI 32-bit 2x Parallel Port I/O Card



Dual PCI bus 32-bit PnP bi-directional parallel port with 83-FIFO.

- ST-78C34 83 FIFO
- PnP BIOS support
- Supports LPT1/2/3
- Under DOS acts as LPT port
- Under Win 95/NT acts as LPT port
- Supports addresses LPT1:3BC, LPT2:378, PLT3,278

order code	no. of ports	1-4 price each	5+
CH43032	2 x Parallel Port	£41.99	£36.99

SiS 2D/3D AGP Accelerator Card



An accelerator card which uses the 'SiS 6326AGP' chipset and 8Mb of memory. High performance 2D graphic and Video accelerator. High performance 3D setup Engine supporting 3DPRO with a fill rate of 40M pixel/sec.

Minimum requirements
AGP bus 1.0 compliant system, with Pentium processor. Windows 3.1, OS2, Windows 95.
Windows 98 or NT 3.5/4.0/5.0.

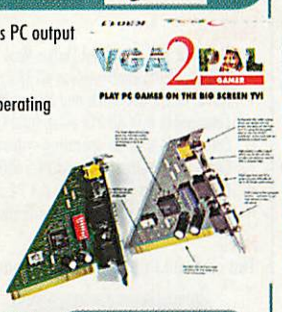
Technical Data

Resolution	Colour Depth	Refresh Rates
640 x 480	up to 32 bit	up to 85Hz NI
800 x 600	up to 32 bit	up to 85Hz NI
1024 x 768	up to 32 bit	up to 85Hz NI
1280 x 1024	up to 64K colours	up to 85Hz NI
1600 x 1200	up to 256 colours	65Hz NI
Game API Support	Direct 3D, Open GL	

order code
SB00810
price each
£23.50

VGA-2-PAL Gamer

atm

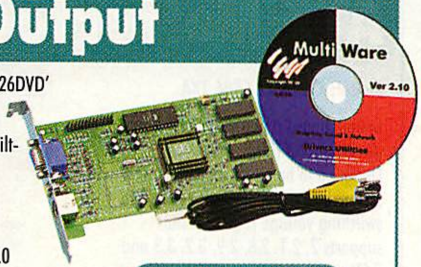


- Converts a VGA signal into composite video and S-video, allows PC output to be displayed on a TV or VCR
- Works with any 640x480 screen mode
- Pure hardware solution, requires no drivers, works with any operating system
- Works without monitor (if required)
- Simultaneous display on monitor and television
- Output on phono connector (composite PAL video) or s-video connector
- Unit is equipped with overscan-underscan mode and 4 anti-flicker modes Fits in standard ISA slot (8 or 16 bit)

Contents: interface card, VGA interconnect cable, 2m phono to phono lead, detailed instruction sheet

order code	price each
CH51391	£27.67

SiS 2D/3D AGP Accelerator Card + TV Output



An AGP accelerator card which uses the 'SiS 6326DVD' chipset and 8Mb (not expandable) of SDRAM memory. The built-in TV output can use either RCA (composite video) or S-VHS connectors. Built-in motion compensation support for DVD.

Minimum requirements
AGP bus 1.0 compliant system, with Pentium processor.
Windows 3.1, OS2, Win 95, Win 98 or NT 3.5/4.0

Contents VGA Card drivers on CD ROM and RCA-RCA lead.

Technical Data

Resolution	Colour Depth
640 x 480	up to 32 bit
800 x 600	up to 32 bit
1024 x 768	up to 64K colours
1280 x 1024	up to 64K colours
1600 x 1200	up to 256 colours

order code **SB00811**

price each **£29.99**

Mighty Banshee 2D/3D AGP Accelerator Card



An accelerator card which uses the 'Banshee Voodoo 2' chipset (3dfx) and 16Mb of memory to provide outstanding results whether playing games or other graphic intensive software.

2D Features 100MHz 128-bit GUI accelerator. Hardware polygon generation and line drawing engine.

3D Features 100M pixel fill rate, 100M texels fill rate. Capable of 4M triangles /sec. On-Chip texture cache unit.

Minimum requirements
AGP bus 1.0 compliant system, with Pentium processor. Windows 95 OSR2.1 with USB supplement installed. Windows 98 or NT 4.0 with Service pack 3.

Technical Data

Resolution	Colour Depth	Refresh Rates
640 x 480	up to 32 bit	60,75,85,100,120
800 x 600	up to 32 bit	60,75,85,100,120
1024 x 768	up to 32 bit	60,70,75,85,100,120
1280 x 1024	up to 32 bit	60,75,85,100,120
1600 x 1200	up to 32 bit	60,65,70,75,85,100
1900 x 1440	up to 32 bit	60

Game API SupportDirect 3D, Open GL, Glide

order code **SB00808**

price each **£49.99**

InnoVISION S3 Savage 4 Pro Accelerator Cards

These AGP accelerator cards use the 'Savage 4 Pro' chipset from S3 to provide up to the minute 128-bit single cycle architecture, 2D/3D graphics processing power. Two versions are available PCI & AGP. Motherboards with a 2x/4x AGP slot can now be run to their true potential. Hardware accelerated MPEG-2 and high quality, motion compensated DVD playback are also supported.

FROM ONLY £33.25

Both PCI/AGP feature
- S3TC texture compression
- 32 bit true colour rendering
- 140M pixel/sec trilinear fill rate
- Specular lighting and diffuse shading effects
- Capable of 8M triangles /sec
- Contrast, hue, saturation, brightness and gamma controls

Minimum requirements:
for the AGP: AGP bus 4x/2x compliant motherboard, with Pentium® processor.
for the PCI:PCI bus compliant motherboard, with Pentium® processor.

Technical Data

Resolution	Colours
640 x 480	16 million
800 x 600	16 million
1024 x 768	16 million
1280 x 1024	16 million
1600 x 1200	16 million
1920 x 1440	256,000

order code	description	price each 1-2	price each 3+
SB01450	AGP 32MB	£51.85	
SB01451	AGP 16MB	£38.55	
SB01452	AGP 8MB	£33.25	
SB01505	PCI 32MB	£51.00	£49.00
SB01504	PCI 16MB	£39.99	£37.99

3DFx Voodoo 3 AGP Video Accelerator



Model: 3DFx Voodoo 3 2000 and 3000

Features
- Uses the 'Voodoo 3' 128bit chipset
- 16MB 166MHz SDRAM onboard memory
- RAMDAC of 300MHz for 2000, RAMDAC of 350MHz for 3000
- Connectors on rear: 2000 - SVGA out, 3000 - SVGA out and Video out
- Digital Video Input connector on pcb
- Requires AGP slot
- Drivers for Win 95/98/NT 4.0

Contents Voodoo Card, Driver on CD-ROM, Manual

FROM ONLY £70.99

Technical Data

Resolution	Colour Depth
640 x 480	up to 16.7M colours @ 160Hz
800 x 600	up to 16.7M colours @ 160Hz
1024 x 768	up to 16.7M colours @ 120Hz
1280 x 1024	up to 16.7M colours @ 100Hz
1152 x 864	up to 16.7M colours @ 120Hz

order code	description	price each 1-2	price each 3+
SB01376	Voodoo 3 2000	£77.99	£70.99
SB01377	Voodoo 3 3000	£112.99	£102.99

Socket 7 AT Motherboard

While Stocks Last



- Intel 430TX PCI chipset
- Intel Pentium® processor operating up to 233MHz and MMX (P54C/P55C), AMD K5, K6, Cyrix 6x86MX, 6x86L, M2 with 321 ZIF socket 7 and scalability to accept faster processors
- Supports up to 256MB DRAM (minimum 8MB) or FP, EDO or SDRAM
- 4 x 72 pin SIMM slots, 2 x 168 pin DIMM slots
- Onboard burst/pipelined burst synchronised cache supported
- 4 x PCI slots, 3 x ISA slots, 2 x IDE devices
- Ultra DMA 33
- Supports 1 x floppy, 1 Parallel (EPP, ECP port) and 2 Serial Ports (16550 fast UART compatible)
- Both PS/2 and AT style keyboard connectors supported (PS2 connector not supplied)
- CPU hardware sleep and SMM
- USB, IrDA/ASK IR port and modem ring and wake up suspend
- Contents: Manual, CD Driver Disc, 1 x floppy drive cable, 1 x HDD cable, Serial and Parallel back plate

ONLY £19.99

order code **SB01298**

40-Way Internal IDC Plug to IDC Socket Extension Ribbon Lead



IDC plug to IDC socket internal ribbon lead which is designed to attach to the existing computer lead and extend the length.
- Enables internal devices to be positioned at a more convenient place within the PC case
- Suitable for Hard Disk Drive, CD-ROM or other E-IDE controlled device
- 30cm in length

order code	price each 1-4	price each 5+
CH62479	95p	77p

Socket 7 AT Motherboard

Model Powerboard P586VX

While Stocks Last



Features
- CPU Support (Socket 7) Intel Pentium® MMX166 - 233MHz, Pentium® 75 - 200MHz AMD K6 PR166 - PR233, K5 PR75 -PR 200 Cyrix/IBM 6x86 M1 P120 - P200, 6x86L M2 P120 P233
- Manual jumpers for CPU set up
- TX chipset Voltages from 2.8 - 3.52V and clock speed from 50 - 83MHz
- Uses the Intel SB82437VX chipset
- Onboard cache of 512Kb Pipelined Burst SRAM
- 1xDIMM (3.3V SDRAM/EDO unbuffered) and 4xSIMM (5V FPM/EDO) sockets available supporting up to 128MB of RAM. Note only 1xDIMM & 2xSIMM at once
- Award Bios • 4 x PCI, 3 x ISA slots • 2 x IDE ports supporting up to PIO mode 4
- 1 x 9 way and 1 x 25 way Serial ports, 1 x Parallel port, 1 x AT Keyboard port
- Power connector is AT type • Dimensions: 220 x 220mm

Contents Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x hard drive cable, Serial & Parallel backplate

order code **SB01301**

ONLY **£20.60**

Socket 7, ATX Motherboard

While Stocks Last

Model: Crusader C586 TXA



System board is equipped with a 321 pin ZIF socket (Intel socket 7). Designed to be easily upgraded. The system board is also equipped with a switching voltage regulator that supports 2, 2.1, 2.8, 2.9, 3.2, 3.3 and 3.5V core voltages.

- Intel 82430TX PCI chipset
- Supports Intel Pentium® Processor with MMX technology 166/200/233MHz; P90-200MHz Cyrix 6x86L PR150+/PR166+, AMD K5 PR90-PR166, AMD K6 166-233
- Supports 8MB to 256MB • 2 x 168 pin DIMM slots, 4 x 72 pin SIMM slots
- 512kB pipeline burst cache • 3 x PCI slots, 3 x ISA slots, 1 shared PCI/ISA
- On board I/O: 1 x serial port, 1 x parallel port, 1 x PS/2 keyboard port and 1 x PS/2 mouse port
- Ultra DMA/33 • 2 x USB ports • Hardware supports SMI green mode • IrDA interface
- DMI interface to warn of motherboard problems • Modem wake-up, ring-on
- ATX power supply connector • Windows 95, Plug and play compatible

Contents Manual, Driver Disk, 1 x floppy drive cable, 1 x HDD cable, 5 x Jumpers

order code **SB01295** | price each **£20.60**

Slot 1 ATX Motherboard

Model: Crusader P2 XLX



Features
- CPU support (slot 1) in SEC package, Intel Pentium® II 233MHz to 300MHz
- Uses the Intel FW82443 AGP LX chipset
- 3 x DIMM (3.3V SDRAM/EDO/FPM unbuffered) supporting up to 348MB of RAM
- Award BIOS, NCR810 SCSI compatible
- 4 x PCI, 3 x ISA and 1 x AGP slot
- Floppy interface, LS120 & Zip supported
- USB & IR supported (no connectors supplied for IR)
- 2 x IDE ports supporting up to PIO mode 4 and UDMA33 support • PC'97 compliant
- 2 x 9 way serial ports, 1 x parallel port, 2 x USB, 1 x PS2 keyboard and PS2 mouse port
- WOL Wake-on-Lan connector • Power connector is ATX type • Dimensions: 305 x 210mm

Contents
Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable and 1 x hard drive cable and retention clip

order code **SB01337** | Great Value | price each **£22.65**

Slot 1 AT/ATX Motherboard

Model Tomato 6DLX

While Stocks Last



Features
- CPU Support (Slot 1), Intel Pentium® II 233MHz to 333MHz
- CPU 'Autodetect ' setup • 4 x PCI, 2 x ISA & 1 x AGP slot
- Uses the Intel FW82443 AGP LX chipset • Floppy interface
- Connectors on board for SB-Link, TB-link and Wakeup-Link
- 3 x DIMM (3.3V SDRAM/EDO/FPM unbuffered) supporting up to 512MB of RAM
- Ami Bios
- 2 x IDE ports supporting up to PIO mode 4 and UDMA33 support
- Power connector is AT/ATX type
- 1 x 9 way and 1 x 25 way Serial ports, 1 x Parallel port, 1 x AT Keyboard & PS2 port
- USB & IR supported (no connectors supplied) • Dimensions: 220 x 220mm

Contents Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x hard drive cable, Serial, Parallel & PS2 backplates and retention clip

order code **SB01292** | price each **£23.60**

Slot 1 LX Motherboard



Features
- CPU Support (Slot 1) Intel Pentium® II 233MHz to 333MHz
- Uses the Intel FW82443 AGP LX chipset
- 3 x DIMM (3.3V SDRAM/EDO/FPM unbuffered) supporting up to 348MB of RAM
- Award BIOS
- 4 x PCI, 3 x ISA & 1 x AGP slot
- 2 x IDE ports supporting up to PIO mode 4 and UDMA33 support
- Floppy interface, LS120 supported
- USB & IR supported (no connectors supplied)
- 2 x 9 way serial ports, 1x parallel port, 1x PS2 keyboard & PS2 mouse port
- Power connector is ATX type
- Dimensions: 350 x 190mm

Contents
Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable and 1 x hard drive cable and retention clip

order code **SB01293** | While Stocks Last | price each **£23.65**

Socket 7, AT/ATX Motherboard



Features
- Shuttle Space Walker HOT-591P board
- CPU support (Socket 7) Intel Pentium® MMX166 - 233MHz, Pentium® 90 - 200MHz, AMD K6-2 266 - 400MHz, K6 166 - 266, K5 90 - 166MHz Cyrix/IBM 6x86MX 166 - 266, 6x86 (L) 150+ -200+MHz, IDT-C6 150 - 200MHz
- Either CPU 'Plug and Play' or manual jumpers for set up, Voltages from 2.0 - 3.52V and clock speed from 60-100MHz
- Uses the VIA VT82C598MVP/VT82C586B chipset
- Onboard cache of 512Kb Pipelined Burst SRAM
- 2 x DIMM (3.3V SDRAM/EDO) or 2 x SIMM (5V FPM/EDO) sockets available supporting up to 256MB of RAM. Note cannot use SIMM and DIMM simultaneously
- 2 x IDE ports supporting up to PIO mode 4 and UDMA33 • 1 x AGP, 4 x PCI, 3 x ISA slots
- 1 x 9 way and 1 x 25 way serial ports, 1 x parallel port, 1 x AT keyboard port • Award BIOS
- Power connector is either ATX or standard AT type • Dimensions: 220 x 220mm

Contents Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable and 1 x hard drive cable, serial and parallel backplate

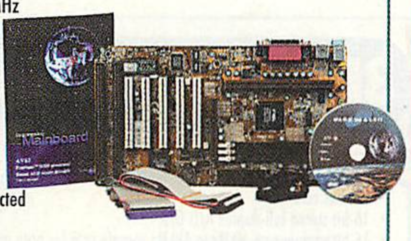
order code **SB00826** | price each 1-4 **£53.50** | 5+ **£51.50**

Slot 1 ATX Motherboard

ONLY £61.99

Model: Spacewalker AV61

- Supports Intel Celeron™ 266/66 - 433MHz
  Intel Pentium® II 233/66 - 433/66 and 350/100 - 500/100MHz
  Intel Pentium® III 450 -500+ MHz
- Uses the VIA VT82C693A AGP chipset
- 3 x DIMM slots available supporting up to 768MB of PC100 RAM • Award Bios
- 1 x AGP, 5 x PCI, 2 x ISA slots
- 2 x 9 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x PS2 Mouse
- 1 x PS2 Keyboard port, all onboard
- Floppy interface
- Up to 4 UDMA 33/66 hard drives can be connected
- Four power modes are available, Full on /Doze /Standby /Suspend
- Dimensions: 305 x 170mm



Contents: Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x UDMA66 hard drive cable

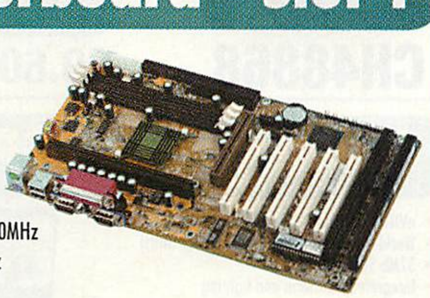
order code **SB01459**

ATX Motherboard - Slot 1

Model: Spacewalker AB61

Features:

- Supports:
  Intel Celeron™ 266 - 466MHz
  Intel Pentium® II 233/66 - 333/66
  Intel Pentium® II 350/100 - 500/100MHz
  Intel Pentium® III 450 - 500+ MHz
- Uses the Intel 82443BX AGP chipset
- 3 x DIMM slots available supporting up to 768MB of PC100 SDRAM
- Award Bios • 1 x AGP, 5 x PCI, 2 x ISA slots
- 2 x 9 way Serial ports, 1 x Parallel port, 2 x USB ports, 1 x PS2 Mouse, 1 x PS2 Keyboard port, all onboard
- FDD and 2 x HDD (UDMA33) interfaces
- Four power modes are available, Full on /Doze /Standby /Suspend
- ATX power connector • Dimensions: 305 x 170mm



Contents: Drivers for motherboard, booklet for motherboard, 1 x floppy drive cable & 1 x hard drive cable

order code **SB01456**

price each **£78.50**

PGA370 ATX Motherboard with Sound & Graphics

Model SpaceWalker ME17

Features

- CPU Support (Socket PGA370), Intel Celeron™ 266/66 to 500+/66 MHz, Intel Celeron™ 500+/100MHz
- Jumperless CPU set up
- Intel 810 chipset with integrated 2D/3D AGP graphics engine and AC97 sound controller (AD1881)
- 2 x DIMM (3.3V SDRAM unbuffered) sockets available supporting up to 512MB of RAM
- Award Bios V6.0 PG on Intel Firmware Hub with 4Mb flash core, supports Green PC, DMI and NCR SCSI BIOS
- 3 x PCI slots, 1 x AMR and 1 x UPT slot
- 2 x IDE ports supporting up to PIO mode 4 using UDMA 33/66
- 1 FDD port, LS/ZIP bootable
- 2 x 9 way Serial ports, 1 x Parallel port, PS2 mouse and keyboard, 2 x USB port and IR port compatible. VGA output, Game/MIDI port, Line in/out Mic in.
- Power connector is ATX type
- Dimensions: 244 x 170mm MicroATX type



Contents Drivers for motherboard Win95/98/NT4.0, booklet for motherboard, 1 x floppy drive cable & 1x hard drive cable, Serial backplate.

order code **SB01382**

price each **£77.50**

SCV6 ISA Sound Card

ONLY £5.15

Features

- Creative ViBRA 16XV VLSI 16 bit chip set
- Plug and play • Soundblaster 16 compatible
- Integrated frequency synthesizer
- Stereo enhancement support
- Dynamic filtering for audio playback and record
- Full duplex DMA enabling 8 and 16 bit data record and playback
- 5kHz to 48kHz variable sampling rate
- Built-in creative stereo enhancement



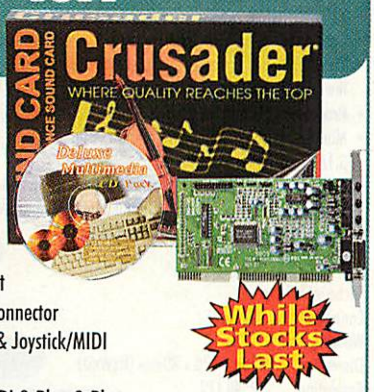
While Stocks Last

Note **To be used only with 'Tomato' motherboards with 10 way socket**

Contents ISA Soundcard, CD-ROM Disk, 10-pin flat cable

order code **SB01251**

ALS100+ 3D ISA Sound Card



Features

- Uses Avance Logic ALS100 Plus+ chipset
- 20 voice FM synthesis
- Onboard amp, 2W per channel
- 8 & 16 bit, mono & stereo record and playback
- Sample rates to 48KHz. • Full Duplex support
- MPU401 compatible interface • Wavetable connector
- Connectors on rear: Line Out, Line In, Mic In & Joystick/MIDI
- Compatible with the following standards: Adlib, SB Pro, SB16, Waveblaster, General MIDI & Plug & Play
- Windows 3.1, 95, NT 4.0 and DOS drivers

While Stocks Last

Note There is no IDE connector

Contents Soundcard and drivers/manual on CD ROM

order code **SB01244**

price each **£6.20**

ALS200 3D Wavetable ISA Sound Card



Features

- Uses Avance Logic ALS200 chipset
- 20 voice FM synthesis
- Onboard hardware Wavetable
- 8 & 16 bit, mono & stereo record and playback
- Sample rates to 48KHz. • Full Duplex support
- Connectors on rear: Line Out, Line In, Mic In & Joystick/MIDI
- Windows 3.1, 95, NT 4.0 and DOS drivers
- IDE connector • MPU401 compatible interface
- Onboard amp, 2W per channel
- Compatible with the following standards: Adlib, SB Pro, SB16, Waveblaster, General MIDI & Plug & Play

While Stocks Last

Contents Soundcard and Drivers/Manual on CD ROM

order code **SB01245**

price each **£7.20**

SoundBlaster Live! Value



ONLY £61.99

This card incorporates Creative's 'Environmental Audio' standard, which gives any supporting software sound quality so good it has to be 'Live'!

Features
- Uses the EMU10K1 synthesis chip • Up to 192 voice wavetable synthesis • 3D sound from two speakers • Full Duplex support
- Support for Directsound3D and Directsound in 2 and 4 speaker modes with compatible software. Environmental Audio supported
- Real time digital effects such as reverb, chorus, pitch shifter
- User selectable DSP mode to simulate Hall, Theatre etc. • 8 & 16 bit, mono & stereo record and playback
- 48 MIDI channels, 128 GM/GS compatible instruments & 10 drum kits • Connectors on rear: Front Line out/Speaker Out, Rear Line Out, Line In, Mic In & Joystick/MIDI
- Sample rates from 8 to 48KHz • Compatible with the following standards: General MIDI, MPC-3, MPU401, Plug & Play, Directsound, Directsound3D.
- Connectors on board: Aux in, Digital CD in, analogue/MPC-3 CD in, telephone in. • Uses up to 32B of system RAM for wavetable samples

Minimum requirements PCI free slot with 133MHz Pentium processor, 16MB RAM (32Mb for NT), Windows 95/98 or NT 4.0
Contents PCI Live! card, driver & applications on CD ROM, digital & analogue audio CD cable.

order code
SB00815

8MB PCI SVGA Card

ONLY £22.60

- Uses the SiS 6326 chipset
- Onboard 8MB memory (not upgradeable)
- PCI slot required
- Has feature connector
- Supplied with drivers on CD ROM for Win 3.1/95/98/NT 3.5/4.0/5.0



order code
SB01496

3D Wave ISA Soundcard

Features
- Crystal 4235 Chipset
- ISA bus connection
- 16-bit stereo full duplex A/D D/A
- 16-bit sample rate. 4kHz to 48kHz sample rate for both mono and stereo
- 20 voice FM synthesizer
- 128 voice stereo wavetable
- Input for line-in, mic-in plus output for stereo speaker
- MIDI interface
- Compatible with Sound Blaster Pro, Windows Sound System, MPC3, Adlib
- Supplied with drivers and utilities on CD



PINE™

order code	price each 1-3	price each 4+
CH48868	£9.60	£8.31

Genius Sound Maker 32 PCI Sound Card

- Positional 3D sound
- Supports DirectSound, DirectSound3D and Direct Input
- 20 voice FM synthesis
- Digital mixer and volume control
- 15 pin game/midi port
- Sound blaster/pro emulation
- Contents: Sound Card, CD-ROM Driver Disc
- Min. Sys. Req.: P166, 40Mb HDD, 16Mb RAM, Speakers, Windows 95/98/NT 4

NEW



order code	price each 1-4	price each 5+
CH67917	£11.36	£10.65

Powergenie AGP Gameard

- nVIDIA GeForce™ 256-bit 3D Processor
- World first GPU (Graphics Processing Units)
- 32Mb SDR with TV-Out
- Integrated transform and lighting
- 256 bit rendering engine
- AGP 4X with fast write
- 15 million polygons per second
- 480 million pixels per second
- Supports Direct3D, DirectDraw, DirectVideo, Active X, DirectX, OpenGL ICD, QuickDraw
- Contents: AGP Card, Driver Disc, Win DVD Software, User Manual, Phono Lead
- Min sys. Req.: PII 333, 32Mb RAM, 10Mb HDD, DVD-ROM Drive



NEW

order code	price each 1-4	price each 5+
CH75571	£186.57	£178.57

SiS 6326 PCI 4Mb Graphics Card

- Supports DVD MPEG II playback
- Built-in programmable 24-bit true-colour RAMDAC up to 175Mhz pixel clock and dual-clock generator
- Supports VESA Display Power Management Signaling (DPM) compliant VGA monitor for power management
- Supports YUV to RGB colour space conversion and bi-linear video interpolation
- Provides composite and S-Video output port



NEW

order code	price each 1-4	price each 5+
CH75580	£20.83	£19.25

Genius Newsketch 1212 HRIII

- 12" x 12" tablet
- Auto-panning, Scrolling and Zoom in/out functions support
- Stylus and puck can be connected simultaneously with the auto device detect facility
- Programmable buttons support Office 97 and AutoCAD R13, R14
- Min. Sys. Req.: 486, Spare Serial Port, Windows 3.1/95/98/NT, CD-ROM Drive
- Contents: Tablet, 4-button puck with "Magic Surfer", 3-button stylus, Pen Stand, 9 - 25 pin adaptor, Mains Adaptor, Manual, GenitTab Driver CD, AutoCAD R12/R13 and R14 compatible templates



NEW

Technical Data

Connection	Serial
Working Area	12" x 12"
Dimensions	200 x 178 x 80mm (HxWxD)
Resolution	2540 LPI
Accuracy	$\pm$0.025mm

order code
CH74302

price each 1-4	price each 5+
£90.60	£84.13

FREE DELIVERY ON ALL ORDERS OVER £30.00 EXCL. VAT*

ORDERS	HANDLING CHARGE
UNDER £19.99	£3.99
FROM £20.00 - £24.99	£2.95
FROM £25.00 - £29.99	£2.25
ORDERS £30.00 or over	Free of Handling

* Applicable to UK orders only. For details of delivery charges for Export orders, please ask Sales Dept when placing your order, or ask for a copy of the Export Terms and Conditions.

tel: 01772 654455 fax: 01772 654466

Scaleable storage for ASPs

Seagate Technology has announced the first of a suite of Linux-based server appliances targeted at Internet and Application Service Providers (ISPs and ASPs) through a strategic partnership with Cobalt Networks. The first Seagate Server Appliance Solution, scheduled to be available this summer, is an easy-to-use, cost-effective solution that provides scalable storage and reliable data protection for ISPs and ASPs.

What's an ASP? Apart from being a small snake with a breast fetish an ASP is an Application Service Provider. The powers that be (whoever they are) have decided that since Internet connection is slowly moving into the free area it's time to figure out a new way to make money out of us.

This time it's turning the Internet into the equivalent of thin-client intranet. Instead of having your applications loaded on to each individual machine you have the applications on the server. Okay for intranets, but the idea now is to give this capability to Internet Service Providers – or rather, ASPs.

So you boot up your machine and it immediately logs on and stays that way, and when you want to run a word processor you get the version that's on the ASP, it's not on your machine at all.

Now this is aimed primarily at small corporates but you can see where this is heading. It's the inexorable push towards permanent connection, permanent online and permanent control.

After all, what if you don't want to use the word orocessor that your ASP happen to provide? Change ASP? But what if there's no option. Nasty. Anyway back to Seagate who are telling us how they can give the necessary storage and delivery systems to ASPs.

"As Web-based applications continue to evolve and drive storage requirements, the idea of an ISP providing storage as an incremental service to their small-to-medium sized business customers is becoming more and more of a reality," said Tom Mulvaney, senior vice president, Internet Solutions group at Seagate Technology.

"Cobalt's strong positioning in the service provider market and their solid understanding of vending Web-based applications to small-to-medium sized businesses allowed Seagate to develop ways to better serve ISP customers through the delivery of storage as an application. Offering small-to-medium sized businesses access to their information, 24/7, without interruption and fully protected, is a service all businesses in today's Internet economy can't do without."

This partnership provides both companies with immediate and long-term value in delivering complete, turnkey, and affordable server appliance solutions. According to Dataquest, Cobalt is the marketshare leader (in unit shipments) for server appliances.

Through the agreement, Seagate is granted complete access to Cobalt's large installed base of worldwide customers, including over 1,000 ISPs. This agreement will help increase Cobalt's efforts to capture marketshare in the server appliance space and to leverage Seagate's established sales and distribution channel that will broaden the Company's sales outlets.

The agreement also provides Seagate the opportunity to utilize Cobalt's third party developer program for application development on the Seagate server appliances. Applications that will be developed on the Seagate server appliance will also be available for the Cobalt platform. Because the Seagate server appliance platform is Linux-based, application development and deployment will reduce time-to-market for Seagate's suite of solutions.

Squash up there

Aladdin Systems, developer of the *StuffIt* compression format, has started a public beta test of its Aladdin *Expander*, a free Expansion access utility for Red Hat Linux. By creating a pre-release online version of the decompression software, Aladdin opens the door for more widespread testing results, helping to ensure the integrity of the application to provide a solid solution for Linux customers ... yadda yadda yadda.

Which means, basically, that thee and me get to do their beta-testing for them – mind you it's better than doing beta-testing on what's supposed to be a finished product. I dunno, what gets me is that here we have a company with a great product with a silly, provocative name like "StuffIt" and they still turn out the stuffiest of press releases.

Aladdin Expander for Linux is a command line utility that offers expansion of the top compression and encoding formats common to Unix, Windows and Macintosh OS, including StuffIt (.sit), ZIP (.zip), ARC (.arc), gzip (gz), Unix Compress (.Z), Uuencode (.uu), BinHex (.hqx), Arj (.arj), MacBinary (.bin), and MINE (.mime, .mme).

Expander for Linux supports expansion of archives from all versions of StuffIt with the exception of version 1.5.1 encrypted archives and version 2.0 archives that were created using optimisers. "Linux users are faced with a variety of compressed files including StuffIt and Zip archives when files are downloaded from the Internet," said Marty McGillivray, director of product management.

Aladdin Expander for the Linux is expected to be available soon for Corel Linux and the Macintosh OS system. To sign up to be an Aladdin product beta tester, go to: **www.aladdinsys.com/expander**

Aladdin Systems, Inc.



Alan Forsyth explores a Linux distribution

The

In the world of personal computing, never a day goes by without some company or other releasing their latest, fastest, all-singing, all-dancing, "how did you live without it" piece of hardware. Strange, then, it seems with such diversity and variation in product, even sporting the same "chipset" that the operating system market is under-subscribed.

If we remove MacOS and RISC OS, which are essentially hardware-specific operating system's, the number dwindles to the point that if you ask the person in the street to name a Personal Computer operating systems, he would respond "Windows" with zombie-like automaticity.

Anyone who has ever shared in the "Windows" delights of system lockout's, freeze's, bugs, ram over stack's, crash's or – something which RISC OS and Mac OS users are completely unfamiliar with and are excused from class – the infamous blue screen of death! It begs the question, why?

In the real world we have expectations. If a product causes problems and doesn't work to our satisfaction we demand repair, replacement or look for an alternative. A luxury which, on the surface, is not afforded to us in the world of "PC OS's" or so it would seem.

Time to scratch the surface. Enter stage left: Linux.

For those unfamiliar with the name, Linux was developed from the workings of "MINIX", an operating system written by a Dutch professor of computer science back in the 1980's. Its primary goal was to act as a learning aid for his students to come to grips with complexities of the Unix system.

Come the early 1990's, Linus Torvalds, a student studying at the University of Helsinki, who had been experimenting ways of increasing the practical applications of "MINIX", issued his source code as public domain software, so others could work on and modify the "Linux" Operating System.

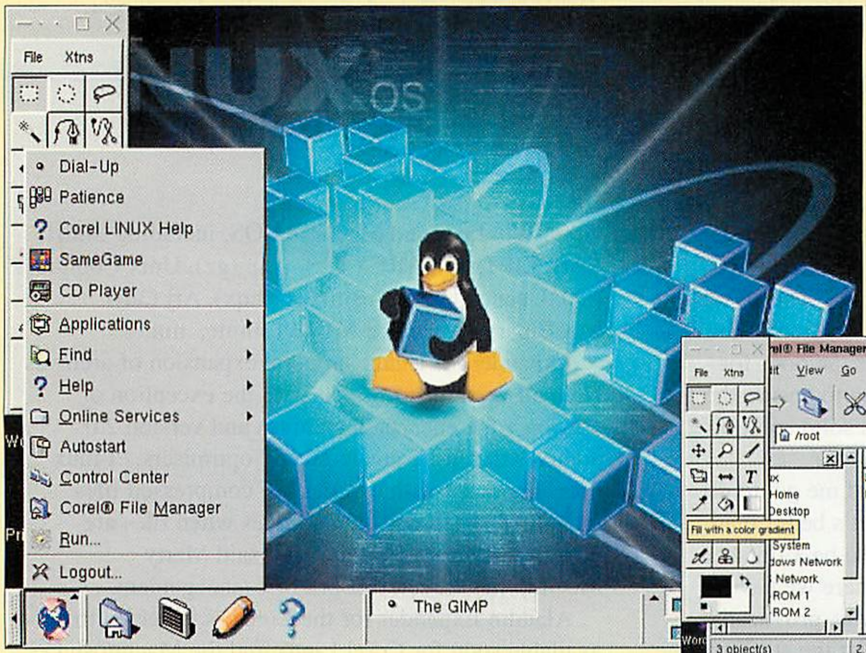
One of the many things that make the Linux OS unique is that it's "open source software" meaning it is available to all. Developers can submit patches, drivers and bug reports to Torvalds, allowing the customisation of the OS to suit the individual user. Providing, of course, they speak the code lingo.

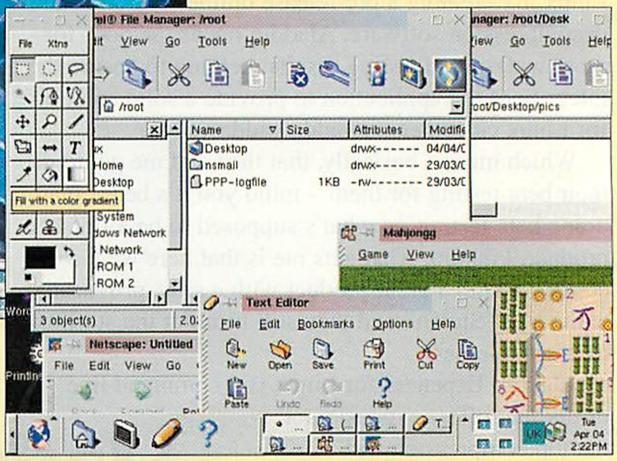
The heart and soul of any operating system is the Kernel which controls and implements command sets. It's essentially the central switchboard for all the system components. The massive, constantly ongoing, user input in development of Linux, has lead to the development of a "robust kernel" – in other words, one that doesn't fall over and break. Which many consider a far more reliable backbone than those offered in many other commercial operating systems.

Enter Corel

CorelLinux 1.0 is one of several variations on the Linux theme available on the market. Although primarily the source code is the same in all systems, according to the company's literature, "CorelLinux attempts to simplify the installation procedure and create a windowed interface and environment that will make anyone who has used the Microsoft system feel comfortable".

The recommended system requirements for CorelLinux are: Pentium Processor or better, 32Mb RAM, 200-600Mb of hard disk space (dependent on the installation type







Art of Linux

chosen) and a 2Mb VGA/SVGA graphic card or higher. These requirements are slightly higher than other Linux variations due to the attempts at a more "Windows"-like environment. Those desktop backgrounds and fancy start menus eat into system resources.

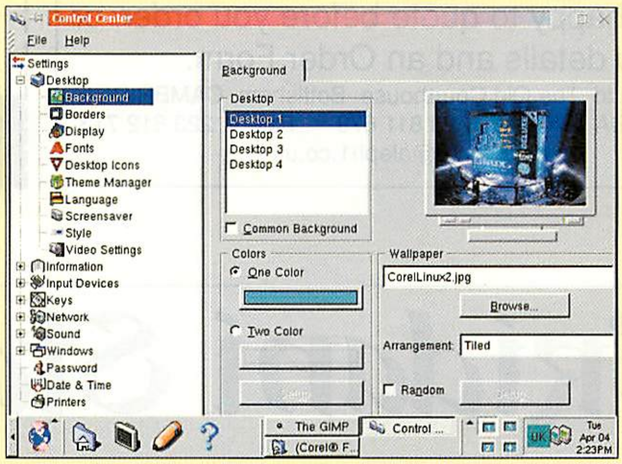
CorelLinux OS is based around the Debian Linux distribution network. Debian is a group of 500 volunteer developers worldwide. CorelLinux as with all Linuxes (Linuxi?) is free to download from the Internet, but be warned the basic OS, at 300Mb+, is a bit of a beast. Far less hassle to buy.

What? The masses cry. *Purchase a free OS!* Well, the OS source code and tools may be free but if you want Corel to offer company support, provide a hardcopy manual, and the extra proprietary software that comes with the retail version of this OS, you will have to put your hand in your pocket. Though at about one third the cost of the retail version of Microsoft's *Windows '98* it isn't outrageously priced.

The manual is fairly large weighing in at 354 pages and, at times, indispensable especially on the networking side of things. The friendly set-up user interface appears, on the face of it, just what it seems. Having previously worked with other versions of the Linux, it was refreshing not to have to mess around setting up partitions, for swap files and installation.

The system can be installed using the express, no-fuss method or, for the more confident user, the thorough advanced set-up. The options are pretty much uniform, you can choose the destination for the install: whether the system is to take over a drive completely by reformatting then installing into "native Linux" hard disk space; create a separate Linux partition around an existing operating system; or reside within a DOS/Windows environment.

The systems installation appeared in my case to be going well until the final boot sequence, when I was presented with a flashing log-in screen. Not disheartened and having a basic grasp of the system, I dropped into



console mode to modify the input device instruction set or XF86 Set-up in Linux lingo.

The command set for Linux shares similarities to MS DOS in structure, remembering that unlike DOS the instructions are absolutely case sensitive. The input set-up screen allows you to modify your mouse, keyboard, graphic card and monitor settings:

Ssssttrrrike 1! My Ge-Force graphic card is not available, so I have to swap it for a basic S3 one;

Ssssttrrrike 2! Every generic S3 chipset is catered for – except the one I have. Not downhearted I check which cards on the Extensive list. Stick in the Matrox G200 and bingo we are in.

The pre-boot sequence asks how you wish to start up giving five choices: Standard, VGA, aka safe mode, Debug, console or advanced. If you have an existing OS this will be available as a sixth option.

Linux, as it is the original network operating system, requires you to log-in with a password after your initial installation. You will be prompted for a password and will have the choice to enter as either your own named "account" or as the root user. This is great as system settings can only be adjusted if you log-in as the root super user, so the chances of family members destroying

the system are greatly decreased.

This desktop is very "Windows" from the pop-up start menu, to the task bar with clock at the foot of the screen. Many of the Windows basic system clicks and shortcuts work within CorelLinux, and in no time at all I feel at home. Unlike Windows the system has a built-in "sticky pin", multiple desktop feature. The Sticky pin allowing you to choose which current open programs appear on the easily switchable desktops.

The addition of GIMP and Word Lite gives you instant basic writing and design software – these are only available with the retail version. There is a good choice of desktop games, a CD/MIDI player and numerous other tools and applications.

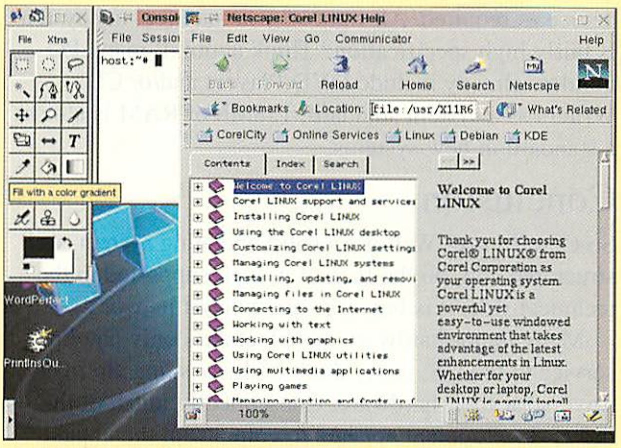
The networking capabilities of the Linux system are awesome. Many Internet service providers use the Linux or Unix system due to its extremely reliable nature. So it comes as little surprise the networking side of CorelLinux is well-supported.

The dial-up networking lets you set up the Internet connections, providing you already have an ISP. The Samba client lets you share files and printer services with Microsoft-based OS machines, and the Ethernet configuration allows you to talk other machines in a local network environment.

Like Windows?

You may feel my comparing of CorelLinux to Microsoft's Windows is unfair and I would tend to agree. This is, after all, Corel's version 1.0. Microsoft have had a lot more attempts to reach their current position in the OS market. I only compare the two because of Corel's claims of the system's simplicity of use, aiming this product square at the "regular" home user. If anyone is looking to affect the home user market well, like it or not, Windows is the current standard.

In reality CorelLinux needs a lot of user input to define it's working parameters. This isn't necessarily a bad thing, in fact I applaud it. Alas it makes a mockery

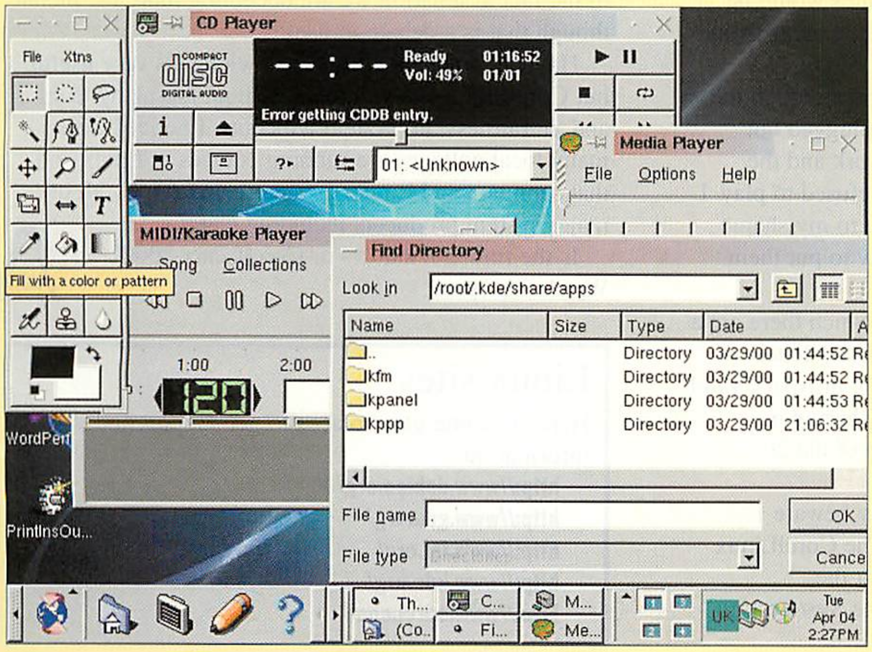


of the idea that it's a simple system to operate. The "windowed" user interface is very similar to Microsoft's own, and several of the operations bear a striking resemblance.

In truth setting up even simple tasks can be lengthy, TCP/IP settings provided me with hours of entertainment, although the manual say's "get your protocol information from your ISP" the harsh reality is that, after contacting four well-known, heavily subscribed ISP's, not one of them was able to answer the questions, Corel say to ask. All four said they were only trained in Windows set-up. Ironically I know that three of these companies use Linux for their main servers.

The system claims to be plug and play. Even if we ignore the fact it was unable to set-up the first two graphics cards I tried out, although it detected the third, I was forced to drop into the console commands to activate XF86Setup, as I experienced minor graphic anomalies. Changing screen mode although on the face of it appeared easy, proved to be complicated.

I also found the old adage "if it isn't broke don't fix it" was once again proven true. When trying to set-up the mouse, in order for all three buttons to work, I found that when I selected the correct mouse listed, the pointer stuck at the top of the screen.



The system also couldn't handle my sound card, and I was forced to follow a sequence of very long-winded instructions to edit the kernel, so I could get sound.

Other minor system changes were needed. It couldn't identify more than 64Mb RAM without additional instruction. The VGA, windows safe mode equivalent has a bug that will not allow you to use the keyboard. Try as I might I could find no way of operating my DVD player and it flatly refused to use my MPEG decoder card.

In order to get the system to use all three CD Devices I have, DVD, CD Player and CD Writer, I had to edit commands so they would mount up automatically, rather than having to individually mount each

device as required. All right so you may feel my system is fairly high specification? Think about it: many PC builders already include DVD Players and/or CD Writers as a system standard, 128Mb of RAM is almost a standard in new systems.

Conclusion

So CorelLinux? Well it's a solid operating system, well structured and, on the face of it, well supported in the technical side, it is however not without its woes.

Many major hardware manufacturers only pay lip service to the OS; many don't bother issuing alternate drivers for their hardware. Consequently much of the driver development appears to come from the unpaid masses. Though this is by no means universally true. You do have to ask how much money can be made out of an essentially free OS?

Although there are an ever-increasing number of titles available. The PC home market is not well catered for, don't be surprised if you find the Linux titles tucked away on a small shelf at the back of your local software supplier. Saying that the Internet has a bountiful supply of free and shareware Linux titles.

The extremely robust nature of the Linux kernel marries it beautifully to company and Web-based network systems. As systems go it's hard to knock down and it gets back up again with little fuss.

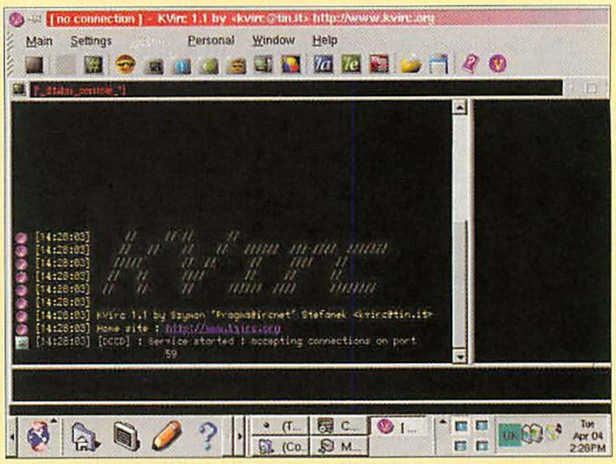
Much of the development has quite rightly gone into system stability unfortunately this, I feel, leads to shortfall's for the average home user, unless you like to tinker expect some surprises. After eight hours of unsuccessful attempts to install the OS on my main home system I eventually installed it onto a relatively low specification machine, where it now resides as happy as Larry.

Unfortunately as Microsoft have shown the home market isn't as interested in stability as they are in bells and whistles, though Linux can be pretty and sing sweet tunes, a hell of a lot of development and support from multimedia and games software companies would be required in order to shift the general public away from Windows.

Information overload is a problem and although the system is theoretically plug and play, I plugged but couldn't play. My keyboard wouldn't work and the powerful graphic card I have installed refused to play. I managed to find drivers for the later but to my shame was unable to find any reference on how to put them into the system.

I turned to the Corel newsgroups of which there are a dozen or so, but wading through the 18000+ letters on the first group I looked at was a daunting prospect. I did find several pleas for help from people sharing my technical difficulties unfortunately none of the 20 spotted had been replied to.

Most new system owners will already beware of AGP or the advanced graphic port. The CorelLinux system makes no reference to this in fact the manual states "PCI Graphics card" in the System requirements section.



External device set-up isn't very plug and play. The external modem I use needed a command line setting up, thank god for the manual, and the printer needed setting up as a network/local printer, then configuring in each piece of software I was using to get it to print.

So do I like CorelLinux? Yes I love it and long may she reign. So I have a lot of gripes and would suggest that version 1.0 is not yet ready to takeover the home OS market. Many of the bugs I found are being dealt with in the Version 1.1 release, due out now.

That says it all for me. User power. Yes okay it may seem like we are guinea pigs at least they listen to our problems and act on them. The newsgroups are buzzing with help and advice and there is the helpline. E-mail and written requests for help are dealt with quickly. The free help is limited although you can buy extended support for a small consideration. The manual and help files in the OS itself answer a lot of the questions that arise.

For once it's nice to feel your contribution is heard. The home market won't fall at the feet of Linux just yet but I promise you once you have your system set up you can withstand the bomb blasts that cripple other well-known operating systems. The label of the "hobbyist's OS" although still partly true is disappearing maybe due to the fact as a nation we are becoming more PC literate though that is a debate in itself.

Having some existing OS knowledge is very useful but CorelLinux lets you learn without too many tears and, in fairness, no system wipeouts. I noticed that many local colleges are running courses in Linux and that seminars and Linux days are being run by all of major system producers including Corel.

Is the future Windows or CorelLinux 2000? Watch this space.

FIN

Linux sites

Here are some good places to get support and information:

http://www.debian.org/
http://www.gnu.org/
http://www.fsf.org/
http://www.kde.org/
http://www.corel.com/

Sites for sore eyes

Steve Scott checks out a brand-new Web design package

This new release from Dansoft Developments, their second since *WebFX3D* two years ago, fills a badly needed gap in the RISC OS market – a standalone WYSIWYG design package, specifically tailored to meet the needs of intermediate or professional users. Current solutions range from a barrage of freeware utilities strung together, to plug-ins of DTP or document processing packages, *HTMLPro* (for *Ovation Pro*) and *EasiWriter/TechWriter* respectively.

Sitewriter has been in development for about a year, and its release has been greeted with a mixture of delight and derision on the Acorn newsgroups, mainly on the subject of its user interface. I'll come to this in a moment, but first of all, let's explore just what this new box of tricks does. The review is being conducted with version 1.02 on a Risc PC, running RISC OS 3.5, and no Net connection, using a copy of the software as e-mailed to me.

The software is normally supplied on a single 1.6Mb disc, along with an HTML-based manual. There are no printed manuals or expensive packaging with *Sitewriter* – hardly the Macromedia or Adobe approach, using large boxes with large amounts of space within, but at least it keeps the cost down.

Part of the joy of seeing a package like this on our platform, is down to the operating system. RISC OS is a superb environment for Web design, and is only let down by the lack of support for the latest Web technologies, a trend that is starting to be addressed with new Web browser products from the likes of Castle and Oregan this year.

Comparable tools on the Mac and PC are superb in their own right, but are let down by the operating system they run on. Being able to have a browser window on screen, plus editing windows, without having to be forever re-arranging, change focus, or minimise, is what makes RISC OS so intuitive in this area. Now the release of *Sitewriter* adds to the enjoyment.

The software opens up with a nicely designed icon, before installing on the iconbar. Two windows will open, introducing you to *Sitewriter*'s stylised interface. Taking the best (or worst) features of comparable tools on the PC and Macintosh, the initial reaction is that of surprise. I really will discuss the interface later.

The first window is the *Site Manager*, where the site files are created, arranged and managed. From here, you have a choice of creating folders, blank Web pages, framesets or HTML snippets – portions of code such as header or footer code to be repeated on every page. These objects are created using the toolpane or via the program menus.

The second window – *Site Object Properties* displays information on the currently selected object in the Site Manager, usually its creation and modification date. Objects can be marked as completed or published – a facility purely for reference purposes – to determine which parts of your site can be uploaded onto your server.

One of the first things I tried to do with this package was to try and import one of my former Web site designs. I was to find that this was not possible – *Sitewriter* has no discernible parser for hand-coded HTML files. It appears that Web sites must be recreated from scratch, importing non-HTML files as you progress. It would be nice to have something that would at least attempt to do this – perhaps a stand-alone program?

Once some initial objects have been created, further windows can be opened. An *Asset Manager*, where all images, files and external links are represented. This facility represents a link between *Sitewriter*'s link management, and the physical location of these files on your

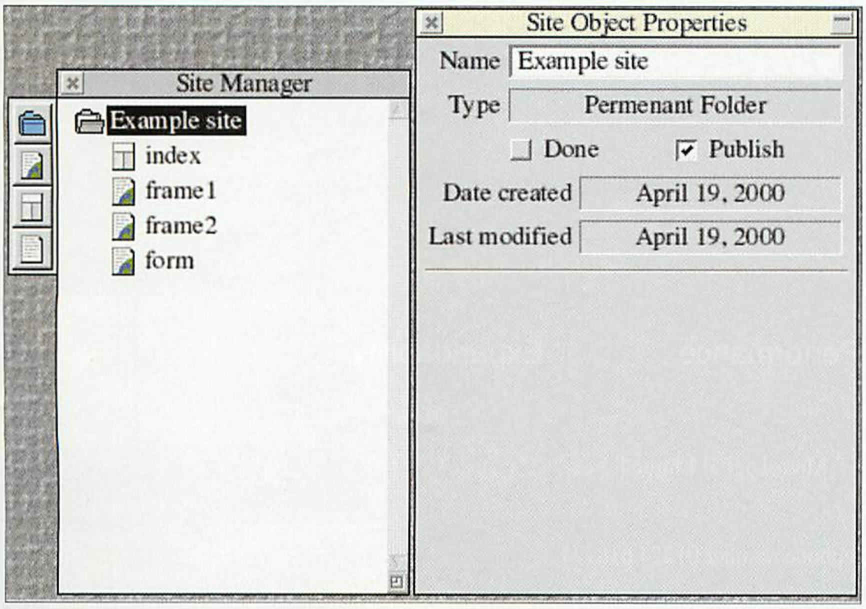


Figure 1: The Site Manager and Site Object Properties

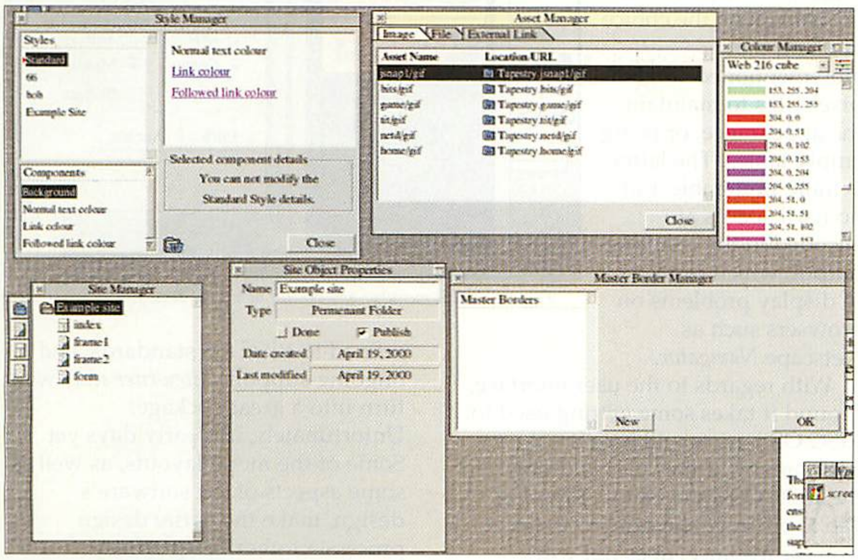


Figure II: The major windows of Sitewriter

system. Then there is the *Colour Manager*, where you can choose from pre-defined palettes, including the so-called Web-safe 216 colour palette, or define your own. The method of picking colours, and indeed, how they are represented is different to the standard Acorn colour picker. Colours are picked up, dragged and dropped onto elements to colour them – not a bad option.

The main part of *Sitewriter* is its page-editing window. Once a Web page has been defined, double-clicking on it will open this window, along with a *Page Properties* window. A toolbar of key items beside the editing window enables the creation of text, images, tables and forms. These elements are drawn onto the page by clicking and dragging bounding boxes.

When released, you can alter that element's characteristics via the properties window. Further options in the toolbar allow you to gridlock the page, to allow more accurate positioning of elements, as well as show the grid – as in Draw.

From the Site manager, I created a simple Web site containing four objects – a frameset, two Web pages which each frame segment will display, plus a form page. The manual recommends setting up a separate folder to keep your Web site in. These folders reside within a special folder in the same directory as the *Sitewriter* application – I hope this isn't too fixed a concept, I like to put my data in a different place to my applications, and it's essential in networks.

The frameset is built using the *Frameset Properties* dialogue where, apart from specifying what the source files are, attributes such as margin settings, orientation, scrollability, width and height in pixels or percentages can be set. However, you cannot set the frame names, and I discovered that you couldn't specify a target frame for any links which you set in one frame with the intention of refreshing the other. If there was a method, it was not apparent in the software or the manual.

The first frame was made to contain a table, filled with menu icons. The *Table Properties* dialogue allows you to specify whether each cell contains text or images. With the latter, you drag and drop your chosen image "asset" from the Assets window by clicking on the Link button in the Properties window. Any elements placed on a page are done in this way. Cells can then have colours and alignment applied to them with ease.

When images are placed, hotspots can be applied to create image maps. When at least two hotspots have been defined on an image, the *Image Properties* window displays positioning info and the ability to link to another page or Web site via the Assets window. Hotspots, and indeed any selected element in a page, can be nudged into position using the cursor keys.

When creating a form page, the toolbar suddenly fills up with many interesting icons. Once the form tag itself has been dropped on to the page, you can then apply elements

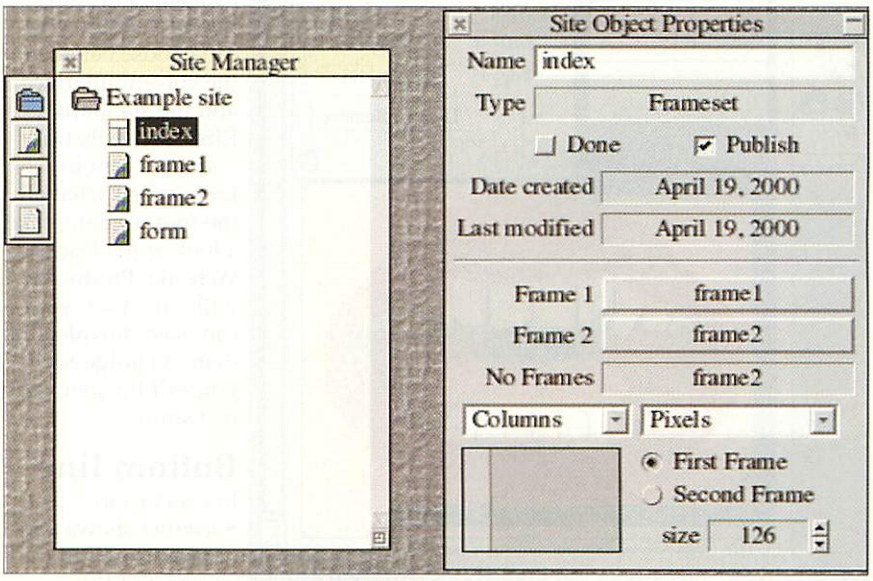


Figure III: The Site Object Properties dialogue

such as checkboxes, radio boxes, text-areas, drop-menus, writable icons and, of course, buttons. The process of form creation is more refined than with the other elements in this version.

The *Style Manager* is not connected with cascading style sheets, as I had hoped (not that current RISC OS browsers support them anyway), but with the colour of text and links normally attributed to the BODY tag. Styles can be applied to any number of pages or an entire site, and can be changed at any time, automatically updating the pages in the process.

Another aspect of *Sitewriter* is the *Master Borders* dialogue. This can be used to add navigation bars to the left or right of your page, or for adding headers and footers to your pages, across a whole site. This is roughly equivalent to the Dream Templates feature of Macromedia *Dreamweaver* 2 and 3, although not as advanced. You can define more than one master border, perhaps for particular layouts within subfolders of your site.

Once the site has been created and safely saved, you can now publish it as a proper Web site folder. On clicking the Publish option in the Site Manager menu, a window containing three tabs appears, showing a small variety of options. You can first specify a name for the folder in which the Web site will be saved, followed by a location to save it to. You are also given the choice of using the aforementioned single pixel GIFs to maintain the appearance, or using empty tables. The latter is more preferable, but no hard spaces are encoded in the resulting output, which can lead to display problems on browsers such as Netscape *Navigator*.

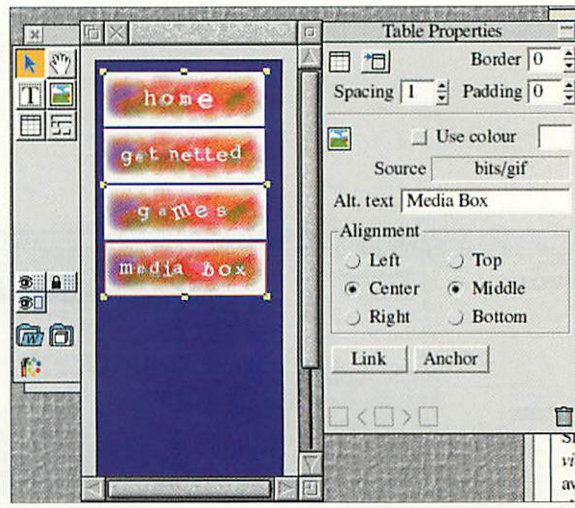


Figure IV: This menubar was created using the Table Properties window

With regards to the user interface, I found it takes some getting used to. RISC OS purists will hate it – it defies many of the rules laid down in the RISC OS Style Guide. Pressing Tab to advance the caret to the next icon for instance, does not work, which is incredibly frustrating.

However, I am glad to report that the author is actively working on a revised interface that will adhere to RISC OS style guidelines. I think that by utilising the best features of other operating systems into the design but with the RISC OS ease of use, *Sitewriter* can prove enticing to Web design professionals of foreign platforms. I would like to see an option made available in future releases, where you can choose between the current interface and the standard RISC OS aesthetics.

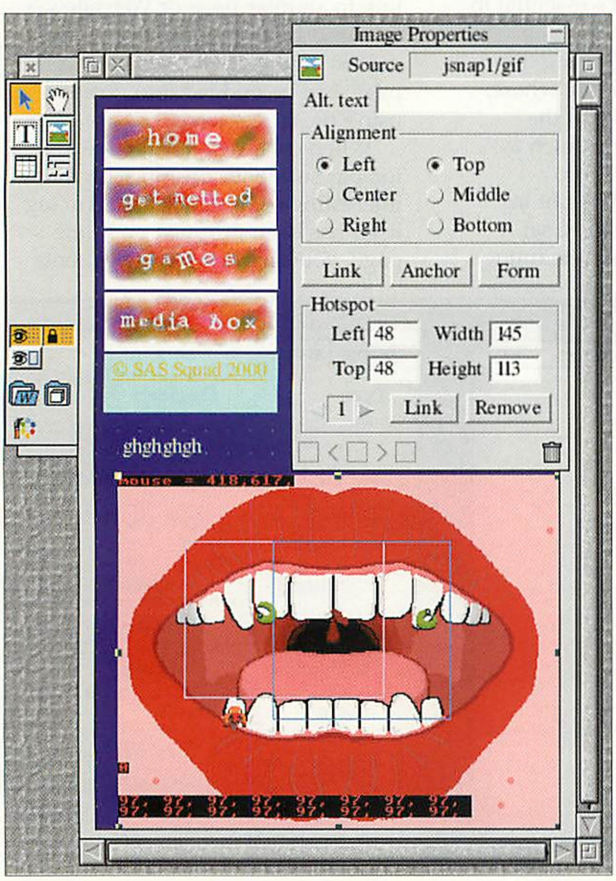


Figure V: Creating hotspots via the Image Properties window

If you want to see for yourself what all the fuss is about, take a look at the Dansoft Web site. Produced with *Sitewriter*, you can even download a demo to judge for yourself the merits of its features.

Bottom line

In conclusion, *Sitewriter* shows a lot of promise. With the prospect of the interface being refined to RISC OS standards, and ongoing support, *Sitewriter* may well turn into a great package. Unfortunately, it is early days yet. Some of the menu layouts, as well as some aspects of the software's design, make the entire design process a rather tiring affair.

In comparison, products such as *GoLive 4* and *Dreamweaver 3* are much more refined in these respects. I urge the author to put more effort into cleaning up the look and feel of the software. With Internet standards always changing, it is vital that *Sitewriter* gets the attention and development it deserves.

Currently, *Sitewriter* is both rewarding and frustrating in equal measures, in the same way as the initial release of *HTMLPro* was. I did not get the opportunity to test *Sitewriter* alongside Multimedia *Textease*, which also has an HTML export facility. But *Sitewriter* is a stand-alone package, and for its current price tag, is quite capable, when you make the effort.

It may not have some of the more powerful features of larger products, but they are considerably more expensive. As it stands, *Sitewriter* is potentially great, but needs further improvement before it becomes an essential part of your collection.

END

Product details

Product:	Sitewriter
Price:	£60
Supplier:	Dansoft Developments, PO Box 1955, Leigh-on-Sea, Essex SS9 5BF
E-mail:	dan@dansoft.co.nz
Web:	www.dansoft.co.nz
Requires:	4Mb RAM, 2Mb hard drive space, RISC OS 3.1 or better

Is the drought over?

Alasdair Bailey concludes his term of office

This month we bring news of a new release from R-Comp. Unlike with previous titles from the gaming giants, this one has been announced completely out of the blue. *Chaos Engine*, an Amiga classic, was ported to the platform some time ago but licensing problems meant that it could not be released commercially until now.

The game is a top-down 2D shooter and although it's a good few years old now and does not excel graphically it's still fun to play. The review is on page 57. In other good news this month, VOTI have announced details of a new game under the title of *Eat My Dust*. More details will follow next time.



Cobalt Seed, a 3D shoot 'em up, also by TBA

TBA no more

In a move long anticipated by those in the know, Martin Piper recently announced the closure of TBA software. The company was a well-known force in the market until recent years which saw many of the group go off to work in full-time jobs elsewhere in the industry.

The company which produced such home-grown titles as *Cobalt Seed* and *FTT* in the mid-nineties went on to produce *BHP*, arguably the first game to take advantage of the StrongARM processor. Recently though, TBA came into disrepute over their long-delayed *Quake*



Formula Two Thousand, still once of the most challenging race games around



Cyber Ape, one of TBA's early platform games

conversion. Eventually, R-Comp negotiated a deal with the author of the free port and sold that commercially. Development of the dedicated RISC OS engine which reportedly needs just "two weeks of full time work" to get it into a releasable state has now been cancelled.

The announcement isn't all bad news though, plans are in place to release much of the source code and development tools used by the company into the public domain. Hopefully, others will be able to utilise these resources to produce some new games but watch this space and keep an eye on TBA's Web site at http://www.tba-software.co.uk

Martin, the group's most prolific coder, finished the announcement with: "It has been a fun few years in the Acorn community and we all have fond memories of past events". I hope I join the rest of the market in wishing all at TBA the best of luck in their future work.

It's been a laugh...

After an enjoyable 15 months but all good things have to come to an end somewhere. Due to changing personal circumstances, I have been forced to retire from the gaming hot seat, hopefully my successor will be able to continue to track down stories even before the Web sites get wind of them. Thanks for reading and do keep an eye out for my work on the dark side in *Computer Shopper* magazine among others.







Iron Dignity

Just to prove that it's not just R-Comp who are producing good stuff for RISC OS mchines, take a look at this lastest selection of screenshots from *Iron Dignity* by Artex. Now this is the kind of thing we are really interested in... END

Contacting me

Alasdair Bailey:
games@acornuser.com

Utter chaos

Paul Johnson wears his fingers to the nub

Chaos Engine from RCI is possibly one of the best attempts to bring a role-playing game to the RISC OS market. While the game is comparatively old in terms of when it was first produced, it still looks fresh and vibrant in this conversion. Brought to our platform by Lee Noar (he of *Abuse* fame) as well as Nathan Walker, Nigel Gilbert and Robert Trevellyan, this top view game is highly playable (I had to force myself to stop playing and start reviewing it).

As with any role-playing game (RPG), the first thing is recruit your team. Here you can play with the computer as player 2 or have a real second player. Which character you choose here will determine how easy the game will be. Obviously, this only applies to the computer player.

The game play is quick. Even on some of the older machines, it is fast (the minimum requirements are an ARM3 machine with 2Mb of memory, so even an A3000 can be used to play this on).

My one complaint is the movement control – you only have eight directions with nothing inbetween (this reminded me slightly of my days playing games on a ZX Spectrum). Don't let that put you off, it is simple to get around by slightly repositioning yourself and firing.

If you're a fan of *Cannon Fodder*, this game is definitely for you. It has the same feel with a couple of major differences – the characters are bigger, the playing area is *far* larger and unlike Fodder, the game can be played on a RISC OS 4 StrongARM Risc PC.

So, what have you to do in the game? As with any role playing game, you have to kill the baddies, collect the treasure and get out alive. Nothing new there. However, it is made fun in *Chaos Engine* by the brain work required to solve the puzzles (some of which are very subtle). Alright, you don't have to be Einstein to solve them, but they do keep you interested.





The variety of enemies also increase the enjoyment. There are so many and have a variety of differing methods to kill you. Ranging from the slow zombie types to the accurate jumping frogs (and more besides) they will keep you on your toes.

As with any other RPG, you need to progress up the levels of experience. This is where things become fun. You move up at the end of each game level (which can be very difficult at times). Easy? No.

If when you end the game level your statistics aren't up to the mark, you don't go up. Reaching the end of level is not as difficult as it may seem if you adopt the "run and dodge" method, basically: don't stand and fight, run and hit the nodes. There are three nodes on each level and all three have to be fired on.) Alright, this method won't get you the highest score in terms of experience, but you will get out alive!





As you progress up the experience levels, the player statistics will change so that as time goes on, you will gain intelligence, strength and dexterity.

You are also awarded passwords to get straight to the next level. Nice. What is nicer though is that these passwords also contain your current stats – it's the same in effect as saving your current position and coming back later.

On an related note, Andrew Rawnsley has said that "if the program sells well enough, Bitmap Brothers are happy for further conversions to take place". If you like playing games (and this is one you will enjoy) and would like to see more in this area, go out and buy it. 57

END



Product details

Product:	Chaos Engine
Price:	£20 inc VAT
Supplier:	R-Comp, 22 Robert Moffat, High Legh, Knutsford, Cheshire WA16 6PS
Tel:	01925 755043
Fax:	01925 757377
Web:	www.rcomp.co.uk
E-mail:	rci@rcomp.co.uk

Online resource

Another online management and content resource for teachers, students, parents, headteachers and governors has been released into the education sphere. Visiting **www.learnall.net** will give you access to education publishers such as Channel 4 Learning, Espresso and SAM Learning.

Just released is the Resources section. This contains curriculum-related materials organised into subject-specific areas and attainment levels. Teachers can easily edit these to fit the needs of a specific classroom, creating lesson plans, online resources and classroom materials. If your school is short of the odd resource, a list of suppliers is attached to each section so you don't have to hunt around for catalogues.

Part of the DIALnet group (0121 624 5045) when you log onto learnall.net your profile is stored and in future you are automatically guided to areas catering for your particular needs. For example parents will be asked the ages of their children and the next time they go online information relevant to them will be there at their fingertips..

Another promising section is Channels. This provides topical and up-to-the-minute information on a range of subjects which is updated daily. News stories are grouped into areas of interest such as the *Staffroom, Primary Education, Secondary Education, SEN* and *ICT*. Other areas such as *Management* provide news of new developments for headteachers and governors.

No site is complete without a chat area and here it's called Communicate. You can send e-mails, take part in conferences and discussion groups between schools and colleges around the world as a bulletin board system or in a live chat debate.

"learnall.net will have something for everyone, from exam revision tips to school finance management resources," promised Craig Taylor in charge of marketing for the new venture.

"But the real beauty of learnall.net is that the login and search facility finds all the information you could possibly want to look for before you've even asked for it."

Any catch? Well the site is free at present and promises to remain so until this September, after that there will be an annual subscription of £120 for teachers and £59 for parents, although Channels and Communicate sections will remain free of charge.

Telling it like it is

Sherston Software (01666 843200) have released two more in their Keywords series. *Science Keywords – The Material World* explores the language associated with materials, their properties and physical processes.

Concentrating on commonly-used words linked to the science curriculum for Key Stage 1 and 2, large, clear photographs help explain concepts and vocabulary.

While *Maths Keywords – Numbers and Calculations* follows the same format again using images and text which can be heard read aloud (for those who need additional support) to help children understand the language associated with numbers, the number system and calculations.

The cost is £29.95 each.



In brief

In a storm

Port is the National Maritime Museum's gateway to maritime-related information on the Internet and has just celebrated its first birthday. This online catalogue of maritime-related Internet resources contains over 1000 resources, selected and described by a librarian or subject specialist at the Museum. It also contains related electronic services such as research guides, directory listings, conferences and an electronic publishing section.

www.port.nmm.ac.uk

Parlez vous Deutsch?

Softease (01335 343421) have added to their battery of education essentials with Textease Language Packs. Available in French and German these cost £39 each.

Used in conjunction with Textease 2000 or Textease Primary the Language Packs allows children to type documents, spell check and speak in the with French or German. The menus and dialogues can also be changed at the click of a button.

A nice and necessary feature is the *AutoAccent* tool. This places the correct accent on characters within foreign words as they are typed. What is more it does so intelligently itself or you can be offered a selection of accents to choose from – you decide which option you prefer.

Indeed teachers can customise the whole work areas and program settings to suit their class. And if you want other languages? These are under development, just watch this space.

Contacting AU

Pam Turnbull:
educ@acornuser.com

No pain politics?

Pam Turnbull analyses a CD-ROM to make political researchers very happy

Researching for articles and essays can be fascinating and/or frustrating and there's that niggling doubt that the looming deadline means that you may just have missed an important nugget of information.

When you find a tool which promises to make your life easier if is tempting to jump in with both feet. However, your first thought should be to check the credentials of the authors.

British Parliamentary Constituencies will definitely appeal to A-level and undergraduate students and the authors are Ivor Crewe, Professor of Government and Vice Chancellor of Essex University, and Anthony Fox, a professional researcher and Research Fellow at University College, Worcester.

Credentials fine, then how is the usability and relevance of the data?



The material is derived from official statistics and solid academic sources and this is arranged on the CD-ROM in a simple menu-driven program created using *KeyPlus*.

The CD-ROM presents the information in pages as you select which of five levels of information you want to access then turn the pages to get deeper into the content choosing from lists and buttons as you go. However, you can also access the data directly and thoughtfully this has been provided at different levels of detail simplified for A-level users.

Thus the main constituency data is in electronic form as SPSS data for researchers or in Excel format for general use while A-level students can access the information as Excel or Datapower files.

You can also opt to save the information as a standard CSV file for importing into your own preferred database or spreadsheet. From there you can conduct "what if..." investigations, manipulating the information to fit with different scenarios as well as developing research, ICT and analysis skills.

The program comes with two booklets providing commentary on the data and how this can be interpreted. In this way it provides a base for analysing the 1997 election and the preparations for forthcoming elections fought on the same constituency boundaries.

What you get, in words and statistics, is a political and socio-economic portrait of every constituency following the extensive boundary changes which preceded the 1997 General Election.

This constituency material contains a full analysis of that election. The information is updated by voting data from the May 1999 elections for the Welsh Assembly and the Scottish Parliament and June 1999 data from the European Parliament elections. In addition the CD-ROM provides comparative data about constituencies and MPs.

Starting with the constituency profiles, there is a profile of the constituency and its MP, its administrative make-up and in table form there are voting outcomes, analysis, geographical size and population density as well as age, ethnicity, social characteristics – housing, poverty, car ownership – and economic characteristics as shown by occupational class, industrial sectors, agriculture and unemployment as a percentage and ranking for region, England (or Wales, Scotland, Northern Ireland) and UK.

Indeed for Wales and Scotland there is also information on the number of the constituency born in the country and those who speak Welsh or Gaelic respectively. For Northern Ireland there is a similar category as well as data on religious denomination.

When it comes to the regions there is regional voting information in 1992 and 1997 for the nine regions, Scotland, Wales and Northern Ireland plus access to constituency maps and voting outcomes. This is further extended to the UK as a whole with a complete index of MPs, constituencies and Press Association numbers, lists concerning political parties and MPs as well as league tables of constituency characteristics.

The use of this database will not just be restricted to students, but political journalists and analysts will also find it a great tool. I would have liked to have been able to compare data within the program or have the data within windows so that different constituencies could be on screen at the same time.

However, there is an awful lot in this: from the Ordnance Survey maps of Northern Ireland to the amazing lists of data such as the seats which changed hands in 1997 to women MPs and Northern Ireland parties or make-up of the Government Front Bench.

An excellent program which will date quickly but I hope that the publishers intend to include Internet update options in the next edition to make this a cost-effective program for students as well as schools and institutions to buy.

Product details

Product:	British Parliamentary Constituencies
Price:	£50
Supplier:	Polemic Publishing, Marquis House, 2 North Street, Winchcombe, Gloucestershire GL54 5LH
Tel/Fax:	01242 604060
E-mail:	polemic.books@argonet.co.uk

Sounds better

Pam Turnbull listens to some software

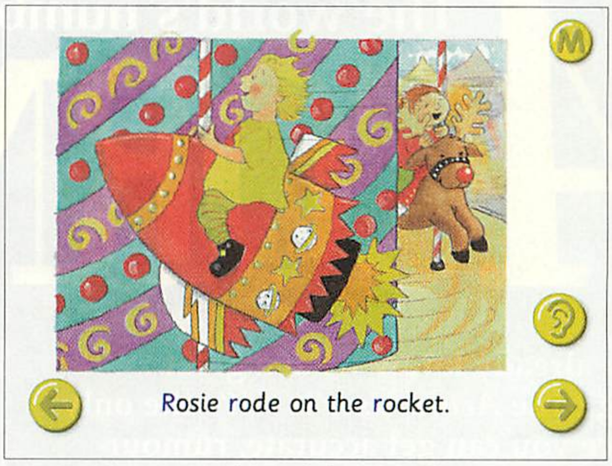
The first of three focused CD-ROMs from Sherston Software and Oxford University Press aimed at Key Stage 1 literacy lessons, Sound Stories is based on the *Letters, Sounds and Rhymes* strand of the *Oxford Literacy Web.*

The aim of the strand is to to develop children's phonological awareness, alphabet knowledge, and their understanding and use of initial letter sounds. There is also a friendly spider that provides children with extra support when needed, reinforces key teaching points and rewards correct answers. To help teachers use the program in literacy lessons, there are clear teacher controls and record-keeping facilities, as well as advice on how best to use the CD as a whole class, group or individual teaching aid.

Sound Stories contains 30 alliterative talking stories. Each one concentrates on an initial sound, and is followed with its own listening and spelling activities. The initial screen asks for your name – teachers can input a class list but recording will only take place if the program has been installed on harddisc or network and is not running directly from the CD-ROM – and also a letter sound. Children can choose letters from a to z as well as ch, sh, th and wh.

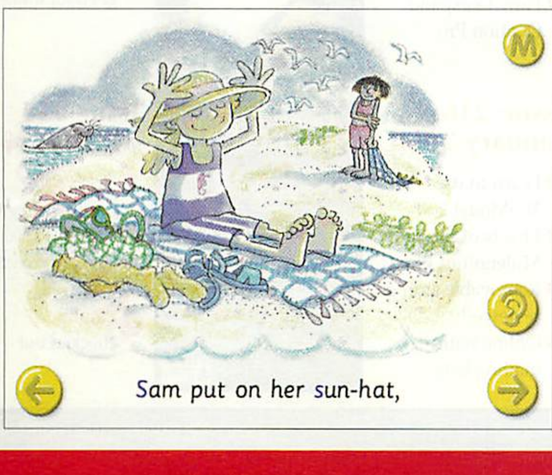
Teacher options allow you to customise the program and to keep track of children's progress. Some of the options available are changing the case of the reference letter, limiting the number of letter choices, switching off the colour used to highlight onset letters or digraphs in the stories or opting for automatic narration as well as choosing to opt out of the games, or only have one on offer.

Once a sound has been selected a book cover is revealed with the chosen letter introduced and instructions given. The control icons are large and easy to understand and each page has big colourful graphics and sound effects with the text large and clear as well with each word highlighted individually as it is read.



At the end of the story a child can move on to the game which is explained simply by the spider. Rather than leave a child in limbo if no answer or a wrong one is given the spider pops up to give help via an example. The first game is a listening exercise based on one page from the story providing reinforcement of the particular letter sound.

Children have to click on a number of things which begin with the relevant letter. As clicked items are labelled as well as being read by the spider. There are more than enough items to choose from and after the spider has read the words the child is encouraged to read each word for himself too.



The second activity is a cloze procedure based on two pages from the same story. Here children must complete the sentence, or name an object using the words provided. The sentence is read out initially including the missing word. You've then got to choose it from the list. Success means that the word is moved into the sentence and read out. Get it wrong and the spider will help reading out the word you choose and emphasising the initial letter sound you should be looking for. Unless you're reading *Boxes* when children will be looking for the final letter sound – x.

The stories are fun, with titles such as *Whizzing Along* or *The Queen's Question*. The graphic style differs from story to story as do the characters and the voices. The animated spider is excellent and the sound effects have more to them than earlier talking stories from Sherston. If there is any criticism, it is that the games lack variety and an option to change the element of difficulty would be a bonus.

Product details

Product:	Sound Stories
Price:	£35
Supplier:	Sherston Software, Angel House, Sherston, Near Malmesbury, Wiltshire SN16 OLH
Tel:	01666 843200
Web:	www.sherston.com

Subscribe to ACORN USER

The world's number 1 RISC OS magazine

You already know what a great magazine *Acorn User* is – it's the only place you can get accurate, rumour-free, detailed RISC OS news, in-depth hardware and software reviews, and without doubt the best cover discs available.

Take out a subscription today and you guarantee never to miss an issue of the biggest and best RISC OS magazine in the world – at a lower price than you can get in the shops.

Subscribe now!

Call our Subscription Hotline

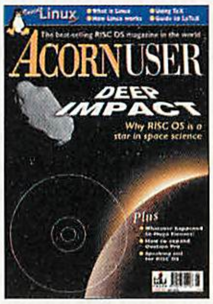
Tel: 0870 606 0424
or 0161 429 8902
Fax: 0161 429 0685
e-mail: subscrip@acornuser.com

Please quote code 'A0006' when subscribing by phone or e-mail

To receive the July Acorn User (issue 222) all subscriptions must be in by Tuesday 23 May. Subscriptions received after this date will start with the August Acorn User (issue 223).

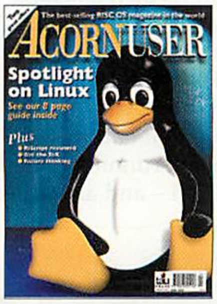
back issues

Missed out on one of our previous issues? Take this opportunity to bring your collection up to date. But hurry – stocks are limited.



Issue 220 May 2000

- RISC OS asteroids
- Brilliant cover CD with TeX & Linux
- What happened to Hugo Fiennes?
- How to expand Ovation Pro



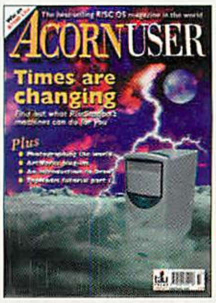
Issue 219 April 2000

- Linux special
- RiScript reviewed
- Getting into TeX
- Interesting Futures
- More TopModel & Draw tutorials



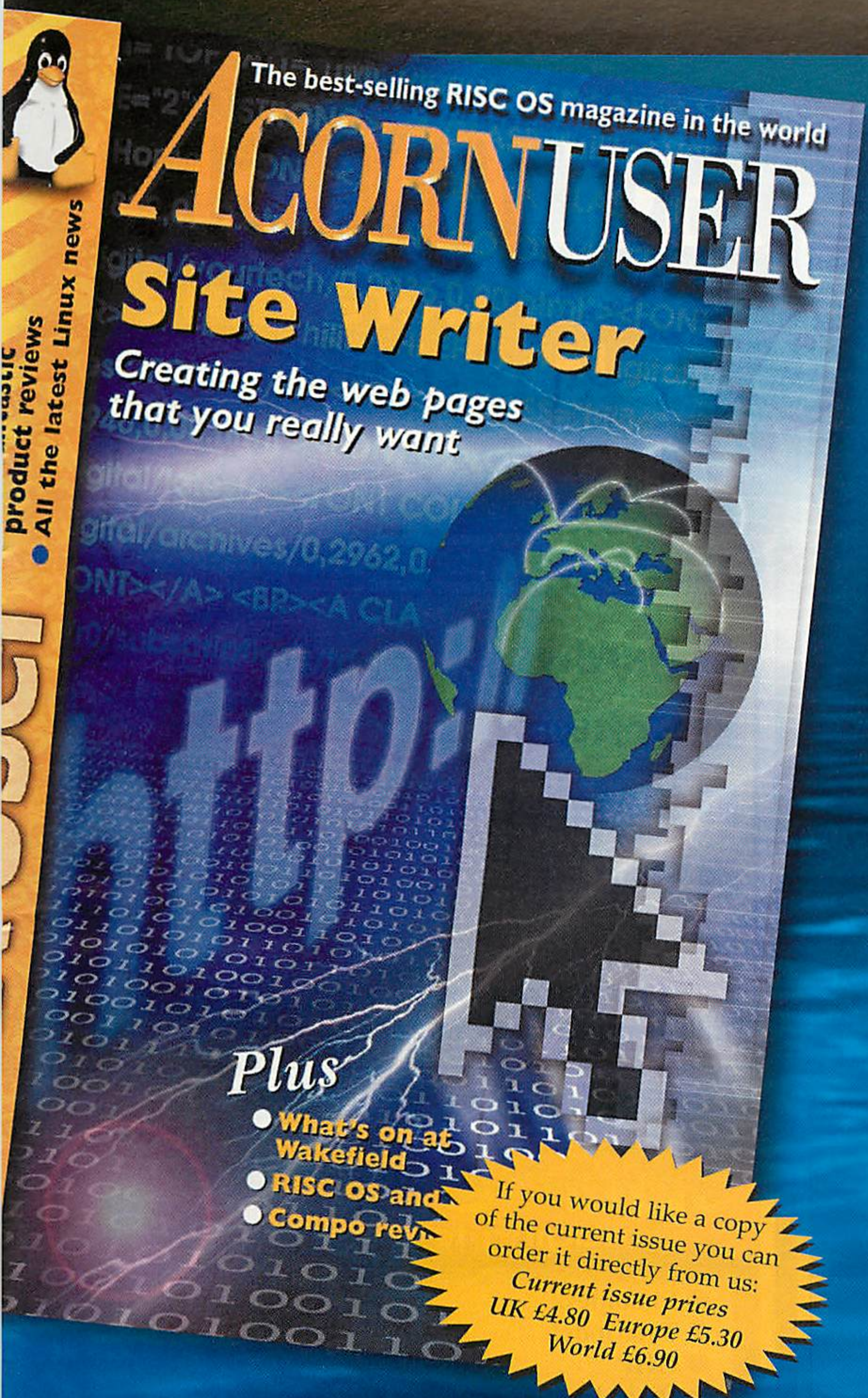
Issue 216 January 2000

- Learn to use TopModel 2
- Effects of the Millennium Bug
- Removable storage reviewed
- Online with mailing lists



Issue 215 Xmas 1999 SOLD OUT

- RiscSta[illegible] hardw[illegible] reviewed
- Wi[illegible] R7500 Lite
- Dig[illegible] projectors [illegible]ewed
- [illegible]araFS checked out



Please send me the following subscription/back issues:

Please subscribe me for:

Annual subscription (13 issues)

	New		Renewal		
UK	☐	AUN0006Y	☐	AUR0006Y	£45.99
EU	☐	AEN0006Y	☐	AER0006Y	£51.99
World	☐	AWN0006Y	☐	AWR0006Y	£63.99

8-issue subscription

	New		Renewal		
UK	☐	AUN00068	☐	AUR00068	£29.99
EU	☐	AEN00068	☐	AER00068	£34.99
World	☐	AWN00068	☐	AWR00068	£40.99

4-issue subscription

	New		Renewal		
UK	☐	AUN00064	☐	AUR00064	£15.99
EU	☐	AEN00064	☐	AER00064	£17.99
World	☐	AWN00064	☐	AWR00064	£20.99

Please send me the following back issues:

		UK	Europe	World	
☐	Issue 220, May 2000	£4.20	£4.70	£6.30	
☐	Issue 219, Apr 2000	£4.20	£4.70	£6.30	
☐	Issue 218, Mar 2000	£4.20	£4.70	£6.30	
☐	Issue 217, Feb 2000	£4.20	£4.70	£6.30	
☐	Issue 216, Jan 2000	£4.20	£4.70	£6.30	
☐	~~Issue 215, Xmas 1999~~	~~£4.20~~	~~£4.70~~	~~£6.30~~	SOLD OUT
☐	Issue 214, Dec 1999	£4.20	£4.70	£6.30	
☐	~~Issue 213, Nov 1999~~	~~£4.20~~	~~£4.70~~	~~£6.30~~	SOLD OUT

Any 2 back issues: UK £7.40 Europe £8.05 World £11.15
Any 3 back issues: UK £9.60 Europe £10.55 World £15.20

I wish to pay by:

☐ Cheque/postal order (payable to Tau Press Ltd)
☐ Credit Card (Visa/Mastercard)

Credit Card No: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Expiry Date: ___ / ___ *Prices include postage & packing*

Name on card: ....

Signature: ....

All credit card transactions will be under the name Powertrack International

Name..

Address ....

....

..............................Country ....

Postcode....................Tel..............................

E-mail..

Send your completed Acorn User subscription/back issues form to:
Acorn User, Tau Press, 26 Stockport Village, Hooper Street, Stockport, Cheshire SK1 1DQ
Telephone *0870 606 0424** or *0161 429 8902* or fax your completed Acorn User subscription/back issues form with credit card details to
0161 429 0685

Have a query? E-mail subscrip@acornuser.com
Please note e-mail is not secure, we do not recommend sending your order details as plain text.

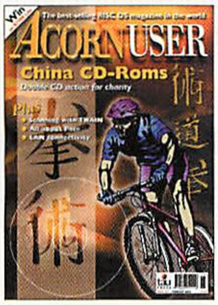
☐ Please tick here if you do not wish to receive promotional information from other companies

*calls charged at National Rate



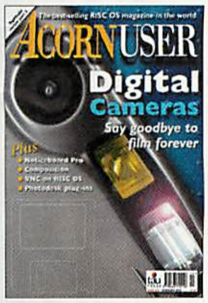
Issue 218 March 2000

- Imago explained
- All about PCA
- MP3 on RISC OS
- Tidal Art
- Ten things you can do with a digital camera



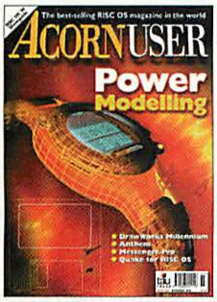
Issue 217 February 2000

- Cover CD-Rom
- Charity CD-Roms
- Using TWAIN
- LAN connectivity
- All about Pace



Issue 214 Dec 1999

- TopModel review part II
- Digital Cameras
- Noticeboard Pro
- Photodesk plugins
- Graphic equaliser
- Ancestor+
- Composition



Issue 213 Nov 1999

SOLD OUT

- TopMo... review ...rt I
- An...n
- I...16
- ...senger Pro
- ...rawWorks SE on disc

ADVERTISERS' INDEX

NORTH WEST

Desktop Projects Ltd
4 Clock Tower Close,
Millgreen Park, Hyde,
Cheshire SK14 1RS
Tel: 0845 4580778

THE 1997 ACORN USER AWARDS 'BEST DEALER'

WE HAVE MOVED



For all your RISC OS and networking needs.
Visitors by appointment only please

Authorised Acorn Dealer & Centre of Technology

Desktop Projects Ltd

Tel: 0845 4580778 Web: www.desktopp.demon.co.uk
E-mail: info@desktopp.demon.co.uk

CARDIFF

UNIQUEway

SOUTH WALES' ONLY RISC OS DEALER
NOW IN OUR 10th YEAR

Technical Support - Repairs - Monitors - Modems - RISC OS 4 upgrades
Computer Hire for TV and Film locations - Acorn Replay Movie Digitising

Reconditioned equipment
A3020 from £75, A7000 from £100, AKF40 £60, AKF60 £85

3 Clarendon Road, Cyncoed, Cardiff CF23 9JD
Tel 029 2046 4020 Fax 029 2044 0071
http://www.uniqueway.co.uk
sales@uniqueway.co.uk

NORTH WEST

Tel: +44 (0) 1942 797777

RiscStation
Risc Based Technologies

For details of the next generation in RISC OS computing, call now, or visit your local dealer

EXETER

ProCAD+

The Professional Choice

(Reviewed in Acorn User May 1999)

£25 off SPECIAL MILLENNIUM OFFER

A FREE demonstration copy of the latest ProCAD+ is to be found on the February Acorn User CD or on the web site shown below.
To claim your 10% Acorn User discount simply quote AU2K when placing your order. Offer ends 31st July 2000.
Telephone now for details: 01392 214033
E-mail: dsnell@mail.zynet.co.uk Web site: http://www.zynet.co.uk/dsnell

HIGHLANDS

Wardlaw Surveys

Authorised Acorn Dealer;
for all your needs from supply,
service, repair and full after-sales.

Wardlaw House, Kirkhill,
Inverness IV5 7NB
Tel/Fax: 01463 831214

West Yorkshire

THE CHOICE OF EXPERIENCE

DAVYN MART

Davyn Computer Services

For the best service in Yorkshire (we think)

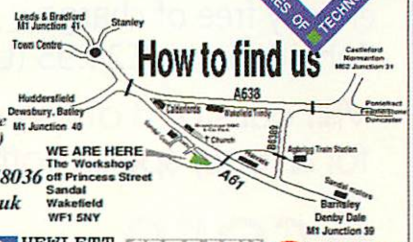
CALL US! for A7000, RiscPC & Pocket Book II

Visit our Showroom
Open 9.30 to 5.30
Mon, Tues, Weds, Sat.
9.30 to 7.30
Thurs & Fri.

Acorn Centres of Technology

Printers, Ribbons, Ink Cartridges, Refills
Expert Advice & After Sales Service
***Mail Order** Master Card, Visa, Switch*
Ring for Prices
Service & Repair to all Equipment
Full Range of Acorn Hardware & Software
(We operate the Acorn Finance Schemes)
Full Range of Educational Software
Tel. 01924 254800 Fax. 01924 258036
e-mail sales@davyn.demon.co.uk

How to find us



Acorn Pocket Book II · RISC PC · hp HEWLETT PACKARD · CITIZEN · Canon

NORTH WEST

CTA DIRECT

168 Elliott St.
Tyldesley
Gtr. Manchester
M29 8DS

Acorn Dealer and RiscOS Centre of Excellence
Acorn Spares and Repairs
All Acorn Machines available on 0% finance

Installation, Networking
Repairs on a no-fix
no-fee basis.

See Main Advert on Pages 4 & 5

Tel. 01942 797777 Fax 01942 797711

BROMSGROVE

Serious Statistical Software

1st

– the only *real* statistical software for RISC OS machines
If you want to analyse *your* statistical data you need *1st*:

- Excellent scientific graphics
- CSV interface to data sources
- Extensive online manual
- Premium real-person support

Ask for a complete loan copy on a three-month trial.
Get *1st*, *1stJr* or *1stL* for just £149, £79 or £49

Serious Statistical Software
19 Station Road, Blackwell, Bromsgrove B60 1QB
Tel: 0121 445 6887 E-mail: sss@argonet.co.uk

RISC OS Rambles

Ample enquiries for Mike Cook

Now I wonder what ever happened to Ample? For the younger among you it was a music writing language based on Forth syntax for the Music 500 and later Music 5000 add-on modules for the original BBC Micro. These modules had hardware which formed the basis of the Archimedes sound system so, in theory, Ample should be able to be made to work on the more modern machines.

Does anyone know what became of it and if anyone has ported it to a Risc PC? By the way a Web search for Ample comes up with all sorts of non-music related stuff as I am sure you can imagine.

A few months someone was asking about a motorised telescope, well this month I came across a web site on just such a project it's at:

http://zebu.uoregon.edu/~mbartels/altaz/altaz.html

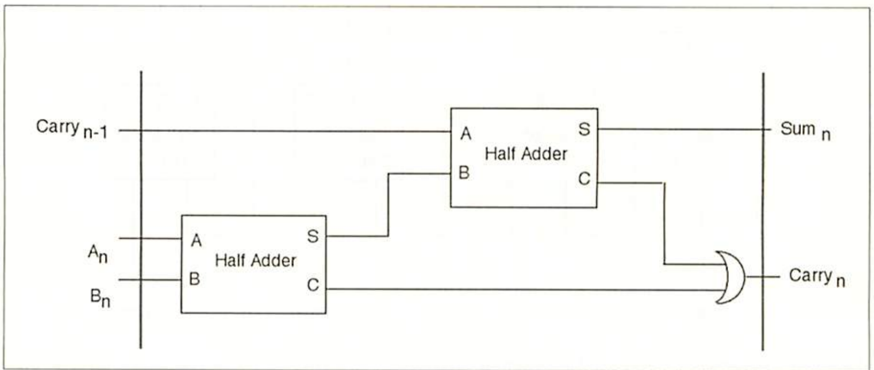
Almost a regular now Gareth is still intent on knowing all about the inside of a computer:

Q "I have a rather complex question to ask you, as everyone else I ask can't give me an answer. What I want to know is about how the computer does simple arithmetic, such as adding or subtracting.

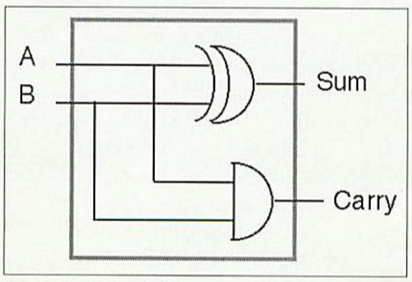
I have basic knowledge of the ALU, and I know it makes most of the decisions and calculations, by calculating the various instructions in binary, but what I want to know is how the computer actually calculates the binary instruction or does simple addition; as it has to use addition to calculate it anyway?

"For example: With 2 + 4, once it is translated into binary, how are the two numbers then added together in their binary form? We use columns from 2 to 128 etc. to do binary calculations, does the computer work in a similar way? I have heard of a hardware lookup table being used for this, but I didn't think it would have a register of every binary combination possible.

"Another thing on this subject: as binary uses voltages, how do these voltages work to do arithmetic calculations? Do they turn a gate on or off or something?



Two half-adders make a full adder



The logic of a half-adder

"Finally, I have a question about SWIs. Why is it faster to use the decimal or hexadecimal codes for SWIs such as &2E? Is it because there is less converting for the computer to have to do?"

A What happens inside a processor is that various fields in an instruction activate various parts of the ALU (Arithmetic Logic Unit). For example in all ARM code instructions the top four bits must match the current state of the condition code flags before the instruction is actually executed at all.

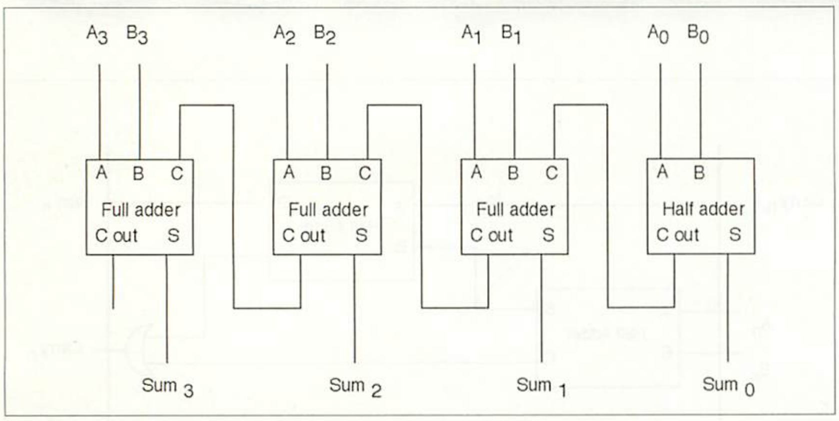
For data processing instructions bits 21 to 24 define what operation is to take place, bit 20 determines whether or not the instruction will set the status bits, bits 12 to 15 determine the destination register, bits 16 to 19 determine one of the registers to use and bits 0 to 11 decide the other register or immediate value.

For the add instruction bits 21 to 24 are set to 0100, this pattern activates the adder function in the ALU by routing its output to the destination register, and the other bits in the instruction switch the

adder's inputs to the appropriate registers. Now having decided to activate the add circuit how exactly does it add up. When you want to add up you just add up one column at a time, with decimal numbers this means you have to deal with the numbers numbers 0 to 9 only.

A computer does a similar thing but it's columns are binary and so have just 0 or 1 in them. It is simple to add up two numbers with such a limited range:- 0 + 0 = 0; 1 + 0 = 1; 0 + 1 = 1; and finally 1 + 1 = 0 and carry 1. There is no great deal of complexity to this and you can generate this relationship with a simple logic gate.

If you plot this out as a truth table you will see you have the exclusive OR function for the sum and an AND function for the carry out. This collection of gates is also known as a half-adder and is usually constructed entirely out of NOR gates and is shown opposite. To make a full adder you have to get another half adder to handle the carry in from any previous column and arrange an OR gate to generate a single carry out from either of the half adders. So all you need is a full adder circuit for each bit, that means 32 full adders to add two 32 bit numbers.



Adding two 4-bit numbers with a full adder for each bit

The binary voltages are simply inputs to the logic gates, with voltages being used as outputs from those gates. As to your SWI question, in BASIC the conversion from a string to a number takes time and has to be performed each time the instruction is executed. Therefore it is marginally faster to give the computer the number in the first place.

In assembler or a compiled language the conversion is only done once, during the assembly/ compilation, so makes no difference to the running speed of the program.

Contacting AU

Mike Cook:
rambles@acornuser.com

Tony Lindop has some comments about the DOS mapping problems posed in the December 1999 issue:

"I believe that I have the answer to your final piece on DOSMAP commands raised by Christopher Rayson. I am a regular PC user and for some time have exchanged discs between my A5000 and DOS-based computers. I even had a small application published by *Acorn User* around November 1996, which mapped a large number of DOS file extensions to RISC OS file types and appropriate sprite icons.

"I believe that the whole blame can be placed on the shoulders of Microsoft as usual. A quick check on where file type information is saved on a 1.44Mb disc, using a sector editor (for example, **http://www.lindop.demon.co.uk/programs/**), reveals that directory information is stored as shown below on disc side 1, track 0, sector 1 and so on:

Location	Contents
Bytes 0–7	DOS 8 character file name
Bytes 8–10	DOS 3 character file type suffix
Byte 11	Name terminator, a space = &20
Byte 12	Normally &00
Byte 13	Normally &00 for DOS, but anything in Windows 98
Bytes 14 –31	Directory info...

"RISC OS uses Byte 12 for the last two digits of the file type and the bottom four bits of byte 13 for the 1st digit of the file type. If both Byte 12 and 13 are both zero RISC OS recognises that the file is of type DOS and assigns the default DOS sprite icon to the file. At the same time DOSMAP converts the file to the nominated file type according to the DOS file name suffix, and if a sprite icon exists for the file type, it is used to display the file on the desktop.

"The reason why this does not always work as described above is that MS in their infinite wisdom have changed the layout on the floppy discs. The format shown above is used by all early DOS discs, such as MSDOS, DRDOS, NWDOS and Windows 3.1. A quick check of a newly formatted disc with a number of files written by Windows 3.1, showed that DOSMAP works correctly with every file.

"Recent operating systems such as Windows NT, Windows 95 and Windows 98 seem to write random values in Byte 13, and RISC OS usually interprets the file type as "&x00", where x can have almost any value. Windows does not appear to use this byte for anything useful and it is possible to change the RISC OS file type to &000 without causing any problems as far as I know.

"Thus if a DOS disc is loaded into RISC OS, all files are selected and then converted to type DOS or alternatively to type &000 using the Filer menus, the problem is solved.

"Either of these filetypes work and, as soon as you do this, the Filer recognises that the files are all of type "DOS", and DOSMAP kicks in and re-assigns the file types according to their normal DOS suffices. I have been doing this regularly when exchanging discs between my A5000 and my old office-based Windows NT system.

"I now have to do the same when exchanging discs between the A5000 and an adjacent PC running Windows 98, with which it shares monitor, ZIP discs and a printer. I hope this useful to your readers."

RiscStation
Risc Based Technologies

Official Dealers

West London
Simnett Technology
'Mir' Ham Wharf
the Ham
Brentford
Middlesex TW8 8EX
Tel: 0181 568 5393
E-mail: sales@simnett.co.uk

South East London
APDL
39 Knighton Park Road
Sydenham
London SE26 5RN
Tel: 0181 778 2659
E-mail: info@apdl.co.uk

The Data Store
6 Chadderton Road
Bromley, Kent BR2 9QN
Tel: 0181 460 8991
E-mail: sales@datstore.demon.co.uk

South East England
CJE Micro's
78 Brighton Road
Worthing
West Sussex BN11 2EN
Tel: 01903 523222
E-mail: sales@cje.co.uk

Cyberos UK Ltd.
32-34 High Street
Rottingdean
Sussex BN2 7HR
Tel: 01273 305674
E-mail: sales@cyberos.co.uk

Herts
Cannon Computing
Whitegate
Dunmow Road
Hatfield Heath
Bishops Stortford
Herts CM22 7ED
Tel: 01279 730800 / 900
E-mail: sales@cannonco.demon.co.uk

Reflex Electronic Service Ltd
Unit 17
Gunnels Wood Park
Herts SG1 2BH
Tel: 01438 311299
E-mail: ksaye@reflexel.demon.co.uk

Midlands
Microbits
221 Longford Road
Coventry CV6 6BG
Tel: 01203 644608

Shropshire
KDM Apps
Fourth Avenue
Ketley Bank
Telford
Shropshire TF2 0AS
Tel: 01952 616683
E-mail: kdm@argonet.co.uk

Yorkshire
Davyn Computers
The Workshop off Princes St
Sandal, Wakefield WF1 5NY
Tel: 01924 254800
E-mail: sales@davyn.demon.co.uk

E.t.c.
58 - 60 Hexthorpe Rd
Hexthorpe
Doncaster
South Yorkshire DN4 0DB
Tel: 01302 342818
E-mail: etc@cwcom.net

East England
PHR Computers
55 Walcot Walk
Netherton
Peterbrough PE3 9QF
Tel: 01733 754814

Levens Software
Kable House
Amber Drive
Langley Mill
Nottingham N916 4BE
Tel: 0500 121 242
E-mail: sales@levens.co.uk

County Durham
Footprints
130a Newgate Street
Bishop Auckland
County Durham DL14 7EH
Tel: 01388 600035
E-mail: footpri@nascr.net

Scotland
Liquid Silicon
2 Forth Avenue
Kirkcaldy
Fife KY2 5PN
Tel: 01592 592265
E-mail: liquid@cableinet.co.uk

Wardlaw Surveys
Wardlaw House
Kirkhill
Inverness IV5 7NB
Tel: 01463 831214
E-mail: sales@wardlaw.demon.co.uk

North West England
Cumbria Software Systems
Unit 3A
Townfoot Indus. Est.
Brampton
Cumbria CA8 1SW
Tel: 01697 73779
E-mail: sales@cumsoft.demon.co.uk

East England
1st Impressions
High Fen
Gosberton Clough
Lincolnshire PE11 4JU
Tel: 01775 750535
E-mail: dave@1st-impressions.com.uk

South West England
Explan Computers Ltd
PO Box 32
Tavistock
Devon PL19 8YU
Tel: 01822 613868
E-mail: info@explan.demon.co.uk

IFEL
21 Glenfield Road
Glenmount
Plymouth PL6 7LL
Tel: 01752 777106
E-mail: sales.ifel@argonet.co.uk

TME
5-7 South Street
Wellington
Somerset
TA21 8NR
Tel: 01823 661771
E-mail: office@tme.co.uk

Collin Hawker
IT Equipment Repairs
12a Knighton Lane
Broadmayne
Dorchester
Dorset DT2 8EZ
Tel: 01305 852156
E-mail: colinhawker@clara.co.uk

Spacetech Ltd
1 The Courtyard
Southwell Business Park
Portland
Dorset DT5 2NQ
Tel: 01305 822753
E-mail: sales@spacetech.co.uk

Manchester
Desktop Projects
4 Clock Tower Close
Mill Green Park
Hyde
Cheshire SK14 1RS
Tel: 01845 4580778
E-mail: sales@desktopp.demon.co.uk

CTA Direct
168 Elliott Street
Tyldesley
Manchester
M29 8DS
Tel: 01942 797777
E-mail: sales@cta.u-net.com

Lancashire
Co-Comp
403 Leyland Rd.
Penwortham, Preston
Lancashire
PR1 9SS
Tel: 07970 064479
E-mail: enquiry@co-comp.co.uk

Wales
Uniqueway
3 Clarendon Road
Cyncoed, Cardiff CF3 7JD
Tel: 01222 464020
E-mail: sales@uniqueway.co.uk

Italy
Axes Computer Solutions
Sncdi Scaini Pierpaolo & C.
Via C.Golgi, 7
25064 Gussago(BS)
ITALY
Tel: +39 030 3739001
E-mail: axes@axes.it

Belgium
ACC Computers
Herentalsebaan 212
B2100
Deurne
Belgium
Tel: +32 323/366.50.80

Starlight Corp.
Amerikalei 84 B10
B-2000 Antwerpen
Belgium
Tel: +32 3 238 5245
E-mail: manu_T@writeme.com

Germany
Orcom System Haus
Leipziger Str. 70
06766 Wolfen
Germany
Tel: +49 3494 6950
E-mail: orcomshw@professional-internet.de

Uffenkamp Computer Systeme
Gartenstr 3
D-32130 Enger - Dreyen
Germany
Tel: +49 5224 978075
E-mail: laiu@ucs.de

Holland
ECD Computers
Patrijsweg 16
2289 EX Rijswijk
Netherlands
Tel: 0070 319 4343
E-mail: info@ecd.nl

Datawave Nederland
Christinalaan 31
SOEST
3761 BR
Netherlands
Tel: +31 35 6013016
E-mail: info@datawave.demon.nl

Desk
Sierbloem 3
3068 AP Rotterdam
Netherlands
Tel: +31 010 2860541
E-mail: info@deskvof.nl

X-Ample Technology
PO Box 77
5340 AB Oss
Netherlands
Tel: +31 412 634433
E-mail: xat@horizon.nl

Contact us
RiscStation Ltd, 168 Elliott Street, Tyldesley, Manchester M29 8DS, UK
Tel: (+44/0) 1942 797777 Fax: (+44/0) 1942 797711 E-mail: info@riscstation.co.uk Web: www.riscstation.co.uk

Ins and outs of SPDIF

Mike Cook records his thoughts

I have been getting some e-mail recently concerning Mini Disc recorders and, more specifically, the optical input for digital recording. So I thought I would take a look at it and see what we can make. The standard used in these recorders is known as SPDIF, pronounced as 'SP diff' and is quite complex.

First, I would like to say that to convert to the SPDIF format from digital or analogue signals requires specialised ICs that aren't readily available and as the frequencies involved are around 6MHz it's not something you can do in software or with a PIC. But, for example if you could get hold of a CS8405 from Crystal, you could build a device that converts the 16-bit digital sound from a Risc PC directly into digital SPDIF format without ever going into the analogue domain.

So if we can't do that then why the article? Well what we can make is an SPDIF transmission media converter, in other words something to feed the digital output from your CD drive into a Mini Disc recorder.

If you look on the back of your CD drive you might be lucky enough to have a miniature two pin connector that may or may not be marked 'Digital'. If so, this is a SPDIF output, if you look at it on an oscilloscope you would see an almost pure sin wave at about half a volt. Now actually it's not a simple sine wave because it is really a biphase-mark-code (BMC) modulated signal, that's a form of phase modulation.

That is, in any bit time, two crossings of zero represent a logic one, and one crossing represent logic zero, as shown in Figure I. The frequency of the clock is twice the data rate so that every bit of the data is represented as two logic states which together form a bit time or cell. The data is sent in frames consisting of a number of 32-bit word sub-frames. For a CD there are two sub-frames in a frame and 192 frames in a block. For each sub-frame the logic level of the start bit is the inverse of the last data bit of the last sub-frame – this is the parity bit.

The first four bits of a word – known as a preamble – is used for synchronisation of the receiver and a block of data always starts with the same preamble. The preamble does not use the normal BMC method but some slight modification of it. Also this preamble identifies the coming word's channel, A for left and B for right. There is also a way of indicating more than two channels for surround sound or multilingual translation, but that is not used on CDs.

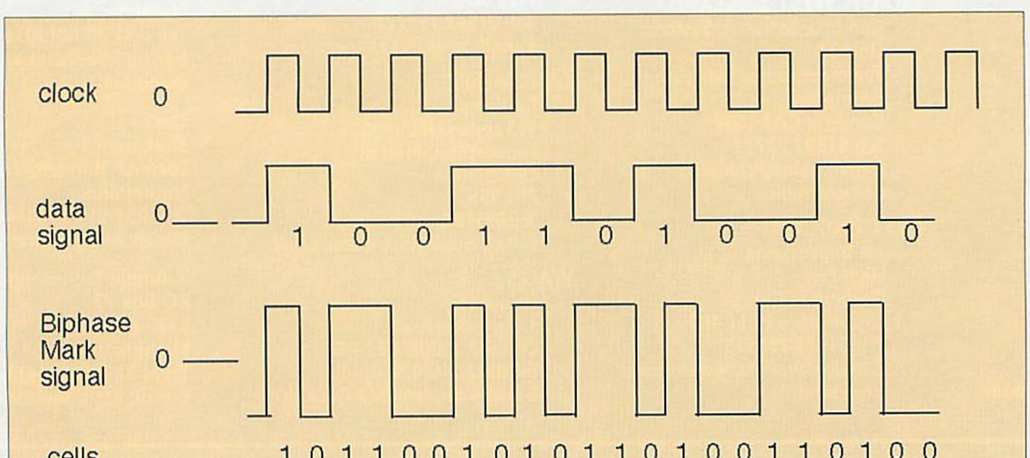


Figure II: How biphase encoding is put together from the signal and clock

Anyway you don't really have to know about the codes because what is important here is the connectivity. In the SPDIF standard there are two physical manifestations of the signal, electrical, known as coax, or optical, called a Toslink.

What I want to show is a method for converting from the coax to the optical method so that

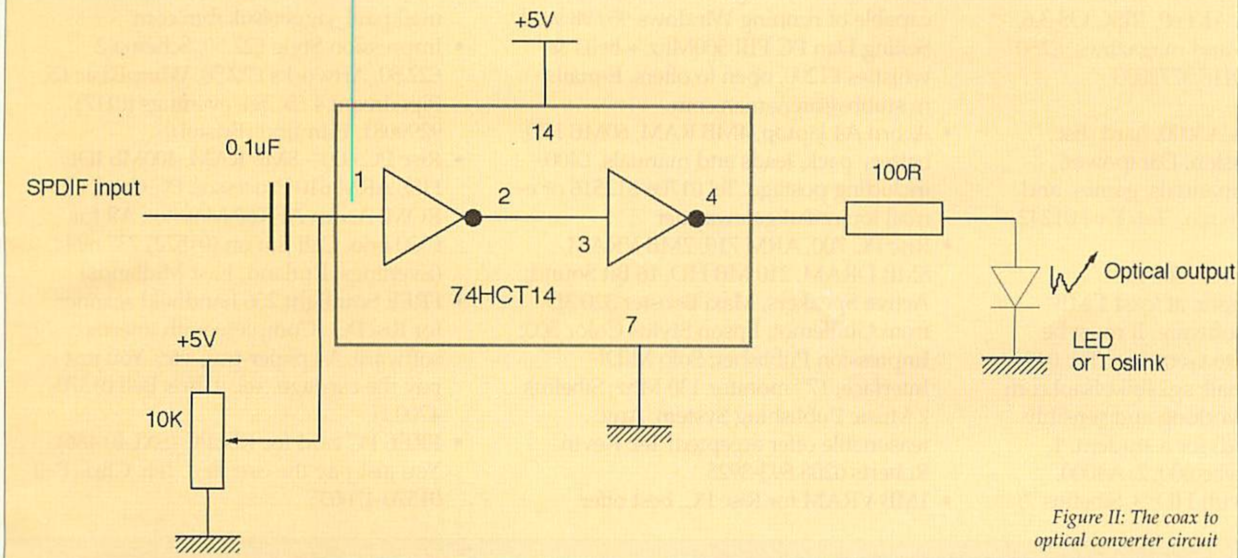


Figure II: The coax to optical converter circuit

you can connect your Mini Disc directly to your CD drive.

Most people seeing an optical connection for the first time assume that it is transmitted by infra-red light, I know I did. However, it actually uses visible red light, the sort you can get from an ordinary LED. Therefore all you need to do is to drive an LED from this small sine wave, the circuit is in Figure II.

Basically the signal is fed into a Schmitt trigger input inverter gate, this gives a logic zero or one depending on whether the input signal is above or below the threshold. The preset pot is used to adjust this threshold to the centre point and can be done by trial and error. This is made all the easier because you can see the LED light up – it's flashing so fast it looks to be on all the time.

Now you do have a choice of methods to deliver this light into your recorder. The most elegant way is to use a special Toslink emitter, one type is the 23278 from Toshiba, these are available from Maplin for about £5.00, order code SV09K. If you use one of these you will also need a fibre optic cable, a Toslink connector on one end and an optical jack on the other.

This cost me £20 from Richer Sounds, you can pay a lot more. However the real challenge of DIY is making it low cost, so you can dispense with the Toslink emitter and the fibre optic cable if you do it yourself. The Mini Disc recorder uses the one hole for a normal jack connector input or an optical input, the way it distinguishes between the two is quite cunning.

There are extra contacts along the body of the jack socket, if the jack socket switch is triggered, by something being inserted, and there is no electrical connection between these extra contacts, then the unit assumes it is connected to an optical cable and switches over to optical input.

You can make a combined optical jack and emitter with an ordinary LED and the inside of an old ball point pen. As the ink in a pen is used it moves down the tube leaving an empty tube. This tube is almost the ideal size to make an optical jack, insert this tube into the Mini Disc recorder and try to record.

You should see it saying 'optical – No signal', if not try another pen insert or try giving it a single wrap of PVC insulation tape. When you have found the right tube cut off a few centimetres and flare one end by pushing the point of a pen in it, or any other tapered object.

You might have to soften the plastic tube first by dipping it in boiling hot water. Then hold it upright in some blue tack and dribble some clear epoxy resin into the tube. You can get a very runny clear resin as opposed to the thick opaque type, ask your retailer.

When the tube is full to the flared top place a 3mm red LED in the end and let it set. You can then wire the end of the LED into the circuit in place of the Toslink emitter. Finally wrap the whole thing in a few turns of insulation tape, you could also put a strip of cardboard along the wire / epoxy interface and then wrap it up again, this will act as a bit of strain relief and prevent fracturing.

To set it up put the Mini Disc recorder into record mode, put the headphones in it and set the CD playing. Then adjust the preset resistor very carefully, you will hear a point when the audio comes through very clearly, also the 'no signal' message should disappear.

Note the limits of the adjustment where this happens and set the pot to the middle of this range. You should then be able to make a perfect digital recording of any CD. Note however that unless you own the copyright to what is being recorded this is actually illegal.

If you want to use a Toslink emitter you can make your own fibre optic cable – a length from Maplins costs about £1. The dust cover of the emitter acts as a plug, just drill it out and glue the fibre cable into it. As for the other end, do exactly the same as before but glue the fibre cable into it instead of the LED. And there you have it.

END

I have had an article published in at least one Acorn magazine every month for the last 18 years and that's a long time.

Run The Risc is going to take a break for a time, but don't worry, I'll still be writing lots of other stuff – I'm not about to stop now.

Keep on writing in.

Free Ads

- RPC700, 32Mb, DX4-100 PC card, HD425, CD-ROM, AKF60, RISC OS 3.6, manuals, software and magazines. £250 ono. Tel G. Tyler: 0118 3778033 (Wokingham).
- Acorn Archimedes A3000, hard disc, upgraded. Impression, Datapower, Schema software, manuals, games, and much more. £250 o.n.o. Tel/Fax: 01242 512306
- WANTED: ARM 710, 7500 or StrongARM processor, at least 1 MB VRAM, different software. It must be possible to send it to Germany. Tel: 049 6721 922067 or e-mail: sg24bike@aol.com
- WANTED: Fully working and sensibly priced (zero is good) for a student: 1. Risc PC 700 or maybe 600; 2. A4000, A3020 or similar with HD; 3. Sibelius 7; 4. Colour video digitiser; 5. Fast PC Card capable of running Windows 95/98 well. Selling Dan PC PIII 500Mhz + bells & whistles £1200, open to offers. E-mail: m.stubbs@arenaman.com
- Acorn A4 laptop, 4MB RAM, 60MB HD, battery pack, leads and manuals. £400. including postage. Tel 01706 812516 or e-mail loujrz@ukgateway.net
- Risc PC 700, ARM 710, 2MB VRAM, 8MB DRAM, 210 MB HD, 16 Bit Sound; Active Speakers, Maxi Booster 320 3D from Guillemot; Epson Stylus Color 500; Impression Publisher; Solo MIDI-Interface; 17" monitor 130 Mhz; Sibelius 7 Music Publishing System; Any reasonable offer accepted! Tel: Kevin Roberts 0208 893-3925
- 1MB VRAM for Risc PC, best offer secures. Call Paul on 0207 202 3309 or e-mail paul_jagger@uk.ibm.com
- Impression Style £22.50, Schema 2 £22.50, Artworks £22.50, WimpBasic £5, Pipedream 4 £5. Tel. evenings (0117) 9299081, Edmund (Bristol)
- Risc PC 600 – 8Mb RAM, 400Mb IDE HD, ARM 610 Processor, PC Card, CD ROM, Acorn AFK60 Monitor. All for £330 ono. Call Jim on (01572) 737 699 (Evenings; Rutland, East Midlands)
- FREE Scanlight 256 handheld scanner for RiscPC. Complete with interface, software, A4 paper-tray, etc. You just pay the carriage. Tel: Chris Bell 01570-470035
- FREE PC card for RiscPC (SXL40 486). You just pay the carriage. Tel: Chris Bell 01570-470035

Why not take advantage of our free reader ad service? Fill in your details on this coupon (25 words maximum, one word per box below) and send it to Free Ads, Acorn User, Tau Press Ltd, 26 Stockport Village, Hooper St, Stockport SK1 1DQ or by e-mail to: freeads@acornuser.com. Only one ad per reader please. Although we try to publish every ad we receive, we can make no guarantees; publication is entirely dependent on space and time constraints. Please include your name and phone number – these will not be published, but help us to contact you if needed. Please include your town/county in each ad to help other readers with their purchasing decision.

Education!

For a while now, I have watched the decline of decent educational software being produced for RISC OS. I ensure that 'Educational' has a capital E since I cannot deny that, in other, more commercial, fields, there are some dynamic moves afoot. However, Educational software houses, Sherston and Logotron included, seem intent on developing their software for the (let's face it – outdated) A3010 family.

While this helps to illustrate the 'One for All and All for One' ethos of the RISC OS fraternity (something that has certainly kept me loyal), I feel that, perhaps, this is no longer relevant to the Education sector. As a RISC OS fan and ICT coordinator of a Junior School, I often get offers of old Acorns being turfed out of other schools. My experience tells me (and I am largely doing the same) that the older machines are being ditched in favour of the more powerful.

In many cases, this is an RM or Compaq Network (lots of money for the support team!), however, I have never come across a Risc PC or A7000 being turfed out of a Primary school – Secondary, yes, for Adult education purposes, but Primaries seem to succumb only to financial pressures. In the light of this I feel that there would still be a prevalent market for RISC OS software in Education, if software houses would have the guts to say 'OK, our new software will require at least an A7000, but it will do all this!' rather than the current thinking: 'Well, we will continue to write some software for the Acorn platform, but it won't have photos or video.'

Well, why won't it? Let's see you show it off! There's no point in saying there is no market for software if that market hasn't been tested. Nobody (especially schools on a shoe-string budget) is going to buy something that doesn't meet expectations. There is a lot of 'content-free' software for the PC, but there is little, in terms of the Curriculum, that makes you say 'No, I'll buy that on RISC OS instead'. There should be, because it is a more stable, child friendly, smoother, faster...blah, blah, blah...system.

Anyway, climbing down from my lofty soap box, the purpose behind this letter is a plea for help. In my search for some descent Education Software for RISC OS, I descended on the virtual mailbox of Dorling Kindersley to discover their views on things. I had no idea that reader disks used to be available to transport DK software to RISC OS.

Unfortunately, these, along with the company that made them, disappeared with the demise of Acorn. I was told, by one very helpful guy, with his head obviously on the right way round, that DK had not closed the doors on RISC OS. If the right company could be found, willing to make the disks, then things could go on as they always (allegedly) had. I dug still deeper.

After talks with 4Mation, they were quite eager to step in the shoes of the previous reader disk developer. They, in turn, contacted DK. This time, however, DK were not quite so forthcoming. It seems that they are happy for the reader disks to be made, so long as they do not have to put any money or effort into their production. They wanted 4Mation to do the market research and prove to DK that it is a worthwhile venture.

With a severe lack of educational research materials for RISC OS, I'm sure it is, but 4Mation do not have the funds to prove it. So, there are three ways we can tackle this: E-mail tom.walker@dk.com and he will pass on your views to the Education department; E-mail Online@dk.com and they will pass on your views to the Education department. Stick our heads back in the sand and pretend that 'Matti Mole' really shows ARM technology off to it's limits.

Acorn designed RISC OS to be used in Education, let's not loose it after so much work has been done.

Graham Wootten
Berkshire

Got the TeX?

Reading your April issue I see that in addition to an article on *TeX* and *LaTeX* you review *RiScript* and say that there are problems with the inclusion of links in the PDF document produced by *RiScript*.

For some while I have been using *PDFLaTeX* with the package *Hyperlink* and this has been generating fair PDF documents for me with active links – click on an index item and it jumps to the section. Now the down side, I have been doing this using *MikTeX* on my PC card and at work. I have also used the new font selection scheme to \usepackage{times} and so get better fonts in my PDF files.

This is the difficult bit then, does Paul Webb, who is writing the TeX article, or anyone, know how to get these packages working with RISC OS? They are not in the distribution I have and not having the time to spend hacking into the source and compiling them for myself I have not found a way of running them without starting the PC card up (bit of a waste of time usually).

R.G. Mayze
The Wirral

Time and again

I think Malcolm Brooke (Letters, April 2000) is referring to my *Counter* program, which appeared in the *Info section some time ago.

Although it correctly calculated the time until an event in the twenty-first century, it failed once the current year reached 2000. An updated version with this bug fixed is available from my web site:

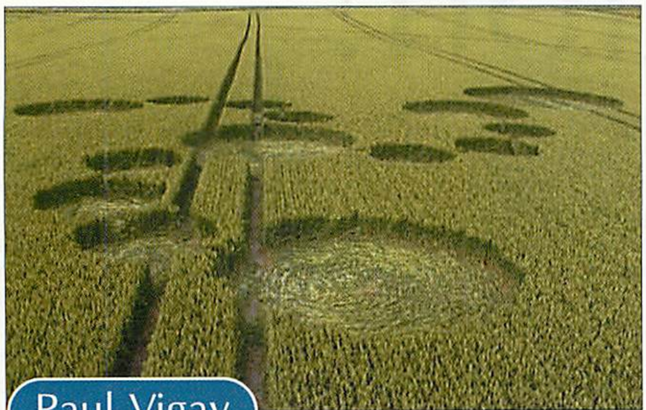
www.argonet.co.uk/users/rawle/jr/

In the January 2000 issue, you featured my *Elements* application, but gave an incorrect URL. This program is also available at the address given above.

Jonathan Rawle
by e-mail

Contacting AU

letters@acornuser.com



Paul Vigay

All I knew about Paul Vigay was that he works for Argonet as ANT technical support and writes for *Acorn User*. OK, so it's interesting in its own right, but not enough to want to tell the whole world about. But I kept getting requests: 'You must interview Paul Vigay, he's such a character', 'Paul Vigay – you should do him, he's the Acorn community's own Fox Mulder...'

It came as no surprise to find that Paul was one of the first to have a BBC B computer: "I have been programming since 1978, when I was first introduced to a Commodore PET at school. I then moved from paper tapes to a Sinclair ZX81 and in 1982 to the BBC B. I started programming pretty much as soon as I got it and wrote several games and applications.

"As soon as the Archimedes appeared I bought a 310, then a 420/1 and a Risc PC as soon as that came out, so you could say I've been supporting Acorn with each new machine. I've been dedicated to Acorn through the years and run the international Anti-Microsoft site."

> *I started as a scientific sceptic*

Paul has worked as a computer consultant for the BBC. He wrote all the software for the children's series *Science Challenge* which, contrasts nicely with Paul's appearance on *News at Ten* as an authority on the paranormal.

"I have always had an interest in the paranormal and the unexplained," explains Paul. "I first became interested in crop circles in 1990 when I was developing some electronic equipment to detect electric current flow behind walls and floors. My mother, who makes dried flower arrangements, had previously collected some corn stalks from local corn fields.

"As I was playing with my new 'toy' I jokingly placed the probe on one of the stalks of corn. I got a reading of electric charge. On some stalks though I got no reading at all. My mother became interested and requested that I leave the room. While I was out she rearranged the stalks. When I came back in I re-tested the stalks and got the same result; I repeated the test five or six times. My mother explained that the stalks with no reading came from the within the crop circle. Still sceptical, I decided to visit some crop circles for myself, took readings and to my amazement, I got 'normal' readings around the field which stopped as soon I entered the crop circle.

"So from being a sceptic from a scientific background, I decided through my own experiences that there were anomalies which couldn't be explained away, even though we know a lot of hoaxing goes on."

Whether you believe in the paranormal or not, Paul does have a few surreal stories of sitting on hilltops looking for UFOs, swapping stories with people like Reg Presley (lead singer of the Troggs), or being threatened by the MOD for revealing classified photos onto the Internet. And yes, Acorn machines do come into it.

"I try to maintain my support for RISC OS through my various other endeavours. I always take my Acorn computer when I'm asked to give a presentation or lecture at UFO/crop circle conferences. People comment afterwards on the quality of my presentation and are quite surprised when I say it's a 10-year-old machine. I've also stored all my crop circle diagrams on my Web site in *Draw* format – which gets quite a few enquiries, especially from Americans about how they can run RISC OS."

Paul was the Acorn/BBC editor of the online service Micronet 800 during the late 80's and early 90's. He was involved in writing some of the early CD-ROM applications distributed by Cumana. So it comes as no surprise that he is currently working on a number of projects.

"In a way it makes me angry at the way Microsoft has bullied its way into the schools market. My multimedia database will not only incorporate a fully featured genealogical application but also be capable of creating all manner of databases, from simple multi-media presentations to list based data management."

I think its safe to say that Paul certainly lives life to the full and if you think the above is not enough, he also manages a rock singer called Uno who used to be the lead singer for Higher Ground. Uno has just released a new album, a few tracks of which Paul is hoping to get exclusively converted to MP3 format for the next AU CD. In this case, you really will have heard it first from *Acorn User*.

Jill Regan